AN EXPERIMENTAL INVESTIGATION AT THREE NAVAL SHORE STATIONS
OF THE FACTORS AFFECTING UNDERSTANDING, ACCEPTANCE,
AND USE OF A NEW MANAGEMENT TOOL, WITH IMPLICATIONS
FOR HIGHER EDUCATION

Dissertation
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[Signatures]
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Chapter I

THE NATURE AND SCOPE OF THE STUDY

A. STATEMENT OF THE PROBLEM AND NEED

Most administrators are concerned at one time or another with getting across new ideas and concepts to those whom they lead and serve. The leader in business and industry tries to get his subordinates to understand and accept various company policies. The industrial supervisor or foreman tries to get his men to accept a new piece of equipment or streamlined work process. In the field of higher education, the college president or dean tries to get his faculty members to be concerned with changes in the curriculum, concerned with adopting new courses, and improving the quality of teaching. In the armed forces, the military leader is confronted with the problem of indoctrinating and training his forces in new weapons, in unified procedures, and in changed methods.

This study has its origin in the very practical question: how does the administrator get those with whom he works to understand, accept, and use new ideas and concepts? The major purpose of this study is to determine some of the factors which affect understanding, acceptance, and use of a new concept such as work measurement. The scene of the experimental work is in the naval shore situation with a focus on getting naval personnel to understand, accept, and use
the concept of work measurement.¹

The orientation and organization of this study were influenced by the experience of the writer and others in being on the "receiving" end as well as the "giving" end of new ideas and concepts. In formulating the problem and the need, it was not difficult to recall experiences which pointed up the fact that there is quite a difference between understanding a new concept and accepting it and believing in it as a part of one's own point of view. It was easy to remember instances where great resistance was shown to new ideas or procedures and where the top administrators were unaware of the real factors which caused the resistance and negative reaction. The writer recalls one of his colleagues reporting on the progress of a new procedure being put into operation by a newly appointed academic dean in a university situation. The colleague's conversation went something like the following: "He can't propose anything that I can't sabotage in one way or another if I want to. Oh, I'll make out his reports for him. I'll fill in the blanks with something, but just between you and me, they won't mean a thing."

The need for experimental work such as the type conducted in this study was emphasized further by discussions with officers and civilian specialists concerned with research activity in the Navy. It was somewhat surprising to find a belief on the part of some that

¹Work measurement is defined here as a management tool which shows the relationship between work turned out and the manhours it took to turn out that work.
all you have to do to put into operation a new concept such as work measurement is to tell the people what it is, how to do it, and that you want it done. In other words, give the people a good manual on the subject and a strong directive ordering them to carry out the instructions. Some of this belief probably stems from the Navy tradition at sea where it is accepted that commands are given and obeyed immediately without question or hesitation. Yet, this emergency tone that immediate compliance with orders is a "life and death" matter is not so often present at naval shore stations.

In formulating the problem then, it became evident that there was some uncertainty about the effectiveness of a manual-directive approach in getting understanding, acceptance, and use of work measurement. Moreover, it was not clear as to what might be a better approach. In addition, there was uncertainty as to the factors which influence understanding, acceptance, and use of work measurement. Indeed, there existed a need for more experimental evidence on the above questions.

B. RELATED STUDIES

Although the writer discovered no study which was quite like the investigation reported here, research has been conducted which is related to the subject of this dissertation, which touches on the areas of education, psychology, sociology, industrial training, and human relations. The related research is cited to give further orientation to the nature and scope of this study.

In investigating the related studies, one of the surprising
things to the writer was to find that there is little exact knowledge of the merit of industrial training in general or the merit of particular training methods. In but a few instances have training programs for supervisors or executives been evaluated. Yet, in nearly every account of a training program the value of evaluation and follow-up is mentioned, but nothing seems to have been done about it. Moreover, Canter's study was the only instance where control groups were used.²

The research conducted by Kriesberg and Guetskow on the use of conferences in administrative work probably relates as closely as any to this study and did influence the direction of the study. Based on one hundred interviews with industrial and government executives, it was reported that many of the executives interviewed found conferences helpful in getting decisions accepted and put into operation.³ Over three-quarters of the executives interviewed thought decisions were made more acceptable by using conferences.⁴

Coch and French reported an experiment, financed by the Harwood Manufacturing Corporation, which was conducted to discover the effects of collaborative participation on industrial production. Technological changes in production methods were introduced through group meetings


⁴Ibid., p. 96.
using three different degrees of participation. The major finding revealed that the level of production after the change is a function of the degree of participation. The level of production resulting from total participation was about 50 per cent higher than the level for no participation. Along the same line, the research reported in the book, *Groups, Leadership, and Men*, indicated that the amount of resistance to change and the aggression against management was an inverse function of the degree of participation. It is worth noting that there is some evidence from the same work to indicate that actual verbal participation is not necessary for participant satisfaction, so long as the members feel that there is adequate opportunity for them to make whatever contributions they desire.

Another body of research which influenced the nature and scope of this study was that of the University of Michigan conference research program. Their findings indicated that the decision-making conference is one of many administrative devices by which the executive attempts to obtain better quality decisions and to insure their acceptance and execution. The importance then, of acceptance and of participation in gaining acceptance was an influential factor in structuring the experimental work of this study.

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On this basis the many studies in the area of group conferences (or small group meetings, or the discussion method) have relevance for this study. For example, in two of the earlier related studies, Watson and Shaw demonstrated that groups tend to be superior to individuals for solving the more complicated types of problems.\(^7\)\(^8\)

In more recent years, the literature has contained many reports of study and research in discussion and conference method. Related articles are appearing in the literature under such headings as the following: group processes; the work group conference; leadership; discussion methods in industry; discussion methods in the armed forces; discussion methods in radio; and discussion in the classroom. Studies have been made of the effects of discussion on attitudes, on retention of factual material, and on critical thinking. Most of these studies claim positive results from group discussion. The studies of Robinson\(^9\) and Rickard\(^10\) are representative of this group. In addition, there have been studies reported on the leaderless group discussion


Timmons has reported a number of studies concerned with the outcomes of discussion. He concluded his survey as follows:

These, then, have been the findings of studies involving the outcomes of discussion. The product of the group in a wide variety of tasks is superior to the product of the average individual working alone. Discussion has with one exception proved superior or equal to lectures and working alone when the outcomes measured were learning, recall, problem solving, and arriving at decisions on a controversial social problem. Discussion is superior to public address with reference to such outcomes as scientific thinking, scholastic grades, information on contemporary affairs, and voice and diction. Discussion is similar to working alone when the task is solving a controversial social problem and when the outcomes measured are attitudes and ability to evaluate the characteristics of alternative solutions. Discussion is similar to public address when the outcomes considered are discrimination ability, information acquired, and personality changes.10

Timmons' coverage of the literature has more recently been brought up-to-date by Dickens and Heffernan who reviewed the current status of experimental research in the field of group discussion.14

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As a result of their review of the literature, they concluded that, "probably more work needs to be done on the problem with careful control of such variables as the comparative skills of a given teacher as a lecturer and as a discussion leader, types of subject matter, maturity of students, etc."¹⁵

In addition to the ways already mentioned of how the related studies influenced this study, one thing more needs to be made clear in getting a view of the nature and scope of the study. This is the fact that the related studies referred to above attempted to isolate specific factors or parts of the situation for the purpose of measurement and study. Such a procedure lends itself to proving statistically the conclusions. This study differs in that instead of attempting to isolate specific factors for measurement and study, an attempt was made to use open-ended methods to discover as many factors as possible which affect understanding, acceptance, and use of work measurement at the local command level. This means then that the conclusions reached have not been tested statistically. To have done so would have meant limiting the scope of the study by concentrating on an isolated segment of the problem. The conclusions reached in this study were drawn from rather extensive observation and experimentation in the field and include a variety of evidence-gathering methods, which are the subject of a later discussion.

C. OBJECTIVES OF THE STUDY

In defining the nature and scope of the study, it is important to know the goals or objectives of the study. The following specific objectives were significant guidelines in shaping the nature and scope of the study:

1. To evaluate the manual-directive approach in getting naval personnel to understand, accept and use work measurement.

2. To search for an effective means of work measurement indoctrination and training.

3. To determine some of the factors which influence understanding, acceptance, and use of work measurement in the naval shore situation.

4. To draw implications for higher education from the findings in the naval shore situation.

D. DEFINITIONS OF TERMS USED

Since the subject matter of this experimental work is not a common one, it is appropriate to define some of the terms used frequently throughout the study. These definitions follow.

Work Measurement. Work measurement is defined here as a management tool which shows facts about work turned out and the manpower it took to turn out that work. Work measurement is a tool which aims at expressing reality in terms of numbers. It
is not an end in itself—it solves no problems by itself. Work measurement simply locates clues, reveals facts, discloses relationships. As such, it can be a useful guide to action.

**Work Unit.** This is a vital concept in any work measurement system. A work unit is a tangible and countable expression of work turned out. Examples are men processed; transfer orders written; rations fed; tons moved.

**Subfunction.** This is another common term in work measurement terminology. A subfunction is a group of related processes or divisions of work within a single work function. For example, WAVES Sales might be a subfunction of the Clothing and Small Stores Division; correspondence might be a subfunction of the administrative section of the Personnel Department.

**Performance Rate.** The performance rate is a way of expressing the relationship between the work turned out and the manpower used in turning out that work. The performance rate is simply the number of manhours expended divided by the number of work units completed. The result of the division is the number of manhours spent per work unit.

**The Navy Shore Establishment Work Measurement System.** This is a work measurement system which is directed and coordinated by the Management Engineer's Office in the Department of the Navy in Washington, D. C. It is sometimes referred to as the integrated system, because it brings together the work measurement facts which are gathered by the various bureaus of the Navy. The principal objec-
tives of the Navy Shore Establishment Work Measurement System are to
determine manpower requirements; to compare the efficiency in man­
power utilization at one shore station with another; and to gather
manpower data necessary to support the annual Navy budget.

The Manual-directive Approach. In this study, the manual­
directive approach is defined as a kind of approach where a new
subject is introduced by means of a written manual which explains
what the subject is and how to handle it. Along with the manual
of instructions there is a written directive from higher authority
promulgating the manual and requesting compliance with the instruc­
tions contained therein.

E. HISTORICAL BACKGROUND OF WORK MEASUREMENT

Since so much of the experimental work of this study centers
around the subject of work measurement, it seems appropriate to
sketch briefly the background of work measurement. The concept of
work measurement as a management tool is certainly not new to the
business and industrial world. In the repetitive, production line
operations, work measurement has had a natural application. It
has been important to know the number of pieces turned out per hour
or the number of minutes per piece. But when we leave the continuous
production situation where the refrigerators and batteries and bear­
ings are coming off the assembly line, the application of work meas­
urement is not so certain. In fact, the application of work measure­
ment to staff work of a non-repetitive nature is a relatively new
field and one in which the U. S. Government and Armed Services have taken the lead.

The real impetus to develop work measurement in government circles came in 1946 when the Bureau of the Budget was made responsible for establishing civilian personnel ceilings. This brought to a focus the need for work measurement, although for some time there had been a growing desire on the part of the President, the Congress, and the Bureau of the Budget to be able to tie budget estimates to something more concrete than adjectives about the size of the job to be done. There was a need to put into budget estimates a factual relationship between work to be done, personnel required, and money needed.

As a result of the great stress being given to efficiency and economy in the management and use of manpower, the Army, the Air Force, and the Navy have in recent years developed work measurement systems. The work measurement program in the Navy was formalized in the year 1950. In letters dated April 4 and April 24, 1950, the Secretary of the Navy directed the Bureaus and offices of the Department of the Navy to bring together their efforts in the field of work measurement. Each bureau and major office was to proceed with the development of a work measurement program designed to serve its own needs. As each bureau developed its own work measurement program, provision was made for collecting facts in common service areas of major interest to bureaus having technical responsibility in such areas. The Bureau of Ordnance, for example, has its own work measur-
measurement program, but in the common service areas of Public Works, Supply, Industrial Relations, and Fiscal—areas in which other bureaus have technical responsibilities—the Bureau of Ordnance collects such data as these other bureaus require.

The most recent historical development in work measurement in the Navy came on April 18, 1952, when the Under Secretary of the Navy established the Navy Shore Establishment Work Measurement System. This system, coordinated in the Navy Department in Washington, D. C., is actually a set of correlated bureau work measurement programs. A more complete description of the Navy Shore Establishment Work Measurement System is given in Chapter II.

F. METHODS AND PROCEDURES USED

A variety of methods and procedures was used in this experimental investigation of the factors which affect understanding, acceptance and use of work measurement at the local command level. These are explained in more detail in the context of the following chapters, but are summarized here to give an overview of the methods and procedures used. It was found necessary to use the following methods and procedures:

1. Conduct personal interviews with naval personnel at three large naval shore stations.

2. Devise and administer a questionnaire to get a measure of understanding and attitude toward the Navy Shore Establishment Work Measurement System.
3. Devise and administer a "Work Measurement Information Form."

4. Devise and administer a revised "Work Measurement Information Form."

5. Devise and administer a "Group Meeting Evaluation Form."

6. Devise and administer a revised "Small Group Meeting Evaluation Form."

7. Write (with subsequent revisions) a "Work Measurement Manual" for use in the experimental introduction of work measurement at the local command level.

8. Hold small group meetings with naval personnel in order to introduce the subject of work measurement.

9. Work individually with naval personnel to help them get a work measurement system installed.

10. Record observations in field logs.

11. Analyse work measurement reports submitted to center commanders.

G. SOURCES OF DATA

The data in this study were gathered by means of the above methods and procedures and came from the following major sources:

1. U. S. Naval Training Center, Bainbridge, Maryland.


H. PREVIEW OF REMAINING CHAPTERS

In order that the reader may see at a glance the relationship between the different parts of the study, a preview is given here of the organization of the remainder of the dissertation.

Chapter II reports the results found in checking the effectiveness of a manual-directive approach in introducing work measurement to naval personnel at the local command level. Since the Navy Shore Establishment Work Measurement System was introduced by means of a manual and a directive, this system is used as a point of focus throughout the chapter. The greater part of the chapter is organized around the following methods which were used to gather the evidence: (1) a questionnaire administered at Naval Shore Station "A"; (2) follow-up interviews at Naval Shore Station "A"; (3) a study of the Navy Shore Establishment Work Measurement System for public works type functions at Naval Shore Station "A"; (4) a study of the Navy Shore Establishment Work Measurement System for public works type functions at Naval Shore Station "C."

Chapter III deals with the experimental introduction of work measurement at a large naval shore station. The objective of the experimental work was to search for an effective method of introducing work measurement and to get some insight into what it takes to get understanding, acceptance, and use of work measurement at the local command level. The chapter begins with a description of the procedure followed during the introduction period and continues
with a report of the results observed during the introduction period. The last half of the chapter is devoted to a description of the procedure used during the follow-up period and a report of the results observed during the follow-up period. Throughout the chapter the experimental evidence is organized into the following three headings: (1) results pertaining to the understanding of work measurement; (2) results pertaining to the acceptance of work measurement; and (3) results pertaining to the use of work measurement.

Chapter IV deals with the experimental introduction of work measurement at a different large naval shore station. The organization of this chapter is very similar to that of Chapter III. This chapter differs from Chapter III in that the experimental work was much more extensive and in the fact that the procedures used were more refined.

Chapter V presents a summary and conclusions of the entire study. This chapter restates the important conclusions of the preceding chapters and brings out some additional conclusions coming from the whole study. In addition, there are presented some suggestions for future research. These suggestions have come from questions raised by this study, but which require research beyond the limits of the investigation reported here.

Chapter VI has to do with implication of this study for administration in higher education. In this chapter the findings of the study are analyzed in terms of how they might have application to the field of higher education.

The last sections of the dissertation are devoted to a bibliography, the appendices, and an autobiography.
Chapter II

THE EFFECTIVENESS OF A MANUAL-DIRECTIVE APPROACH IN INTRODUCING
WORK MEASUREMENT TO NAVAL OFFICERS
AT THE LOCAL COMMAND LEVEL

A traditional and widely used method in the Navy for introducing new materials and subjects consists of a manual on the subject and a directive from higher authority promulgating the new subject and requesting compliance. In searching for the factors which influence the degree of acceptance and use of a new management tool, it seemed necessary to make a check of the effectiveness of the traditional manual-directive approach. This chapter reports the results found in checking the effectiveness of such an approach. The results reported are focused on testing the following hypothesis:

...that the use of a work measurement manual along with a directive from higher authority is a relatively ineffective means of introducing work measurement to naval personnel at the local command level.

Section A of the chapter describes The Navy Shore Establishment Work Measurement System, which was used as a point of focus in investigating the effectiveness of the manual-directive approach. The criteria of effectiveness which were used as guides in appraising
effectiveness are explained in Section B. Section C deals with a questionnaire which was used at Naval Shore Station "A" in testing the hypothesis. Follow-up interviews at Naval Shore Station "A" are reported in Section D. A special study of the Navy Shore Establishment Work Measurement System for public works type functions at Naval Shore Station "A" is reported in Section E, and a similar study at Naval Shore Station "C" is reported in Section F. The chapter ends with a summary statement and conclusion.

A. DESCRIPTION OF THE NAVY SHORE ESTABLISHMENT WORK MEASUREMENT SYSTEM AND HOW IT WAS INTRODUCED

Because the Navy Shore Establishment Work Measurement System was introduced to the people in the field by means of a manual-directive approach, this work measurement system was used as a point of focus in investigating the effectiveness of the manual-directive approach. Before describing the approach used in introducing this work measurement system to the people in the field, a brief description of the Navy Shore Establishment Work Measurement System is in order.

Description of the Navy Shore Establishment Work Measurement System

The Navy Shore Establishment Work Measurement System has been defined as, "The Basic Means Of Defining All Work Areas, Expressing Work In Tangible Quantitative Terms And Relating Amounts Of Work
And Manpower In Managing Of And Budgeting For Manpower. In other words, this is a system which provides facts which show the relationship between work turned out and manpower expended in turning out the work. As the historical developments in work measurement indicate, (described in Chapter I) the Navy Shore Establishment Work Measurement System is actually a set of correlated bureau programs. The responsibility for coordinating the Integrated Program is assigned to the Management Engineer of the Department of the Navy. A Navy Integrated Work Measurement Coordinating Committee assists the Management Engineer in exploring possible areas of standardization, application, and inter-bureau agreement. They agree on the standards used Navy-wide. The coordinating committee is composed of representatives from all the thirteen bureaus and the major offices.

At the present time all naval shore stations report work measurement data to the appropriate bureaus and offices. These bureaus and offices then report the work measurement data in a consolidated form to the office of the Under Secretary of the Navy. The various performance rates (manhours expended divided by work units completed) are compared to standard rates, and thus each local activity receives a periodic report showing how its performance compares with the standard and with that of other stations of a similar type.

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Approach Used In Introducing The Navy Shore Establishment Work Measurement System

The Navy Shore Establishment Work Measurement System was introduced to the people at the local command level by means of a method used widely in the Navy—a manual and a directive. The manual issued to the people in the field contains a definition of work measurement and a statement of its essential purpose; a definition of subfunctions and assignment of work units; and detailed instructions, column by column for making out the required work measurement report which is sent in to headquarters in Washington, D. C.

An invitation for suggestions from the people in the field was made as follows: "Suggestions for improving the program and this publication will be welcomed by the Bureau." The directive which went with the manual was in the standard Navy form, promulgating the work measurement system, giving additional instructions, establishing reporting dates, and requesting compliance.

B. EXPLANATION OF THE CRITERIA OF EFFECTIVENESS TO BE USED

In order to give direction to this investigation of the effectiveness of the manual-directive approach used in introducing the Navy Shore Establishment Work Measurement System, three criteria were used in appraising effectiveness. These three criteria have to do with

17 Public Works Type Functions Work Measurement Program, p. 11
understanding, acceptance, and use of work measurement and are listed and explained below.

**Do Naval Officers Understand the Work Measurement System?**

In applying this criterion, the following specific indications of understanding were noted:

1. Are the officers aware of the objectives of the work measurement system?
2. Do officers remember what work units are used in the work measurement report submitted?
3. Are officers familiar with the basic work measurement terminology?
4. How much difficulty is encountered in getting out the Work Measurement Report?

**Do Naval Officers Accept the Work Measurement System?**

Acceptance involves more than understanding. It is possible to understand the mechanics of a system without really believing in it and accepting it as an integral part of one's point of view. The following indications of acceptance were especially noted:

1. How do officers feel about the work measurement report they submit?
2. Do officers feel that the work units assigned them are representative of their group's work output?
(3) Are attempts made to manipulate the figures in the work measurement report?

Do Naval Officers Use the Work Measurement System?

Probably the best criterion of all is the use which naval officers make of the work measurement system. Therefore, in evaluating the effectiveness of the approach used in introducing the Navy Shore Establishment Work Measurement System, a great deal of stress was placed on evidences of how the people in the field are or are not using the system.

O. THE QUESTIONNAIRE ADMINISTERED AT NAVAL SHORE STATION "A"

One method used in investigating the effectiveness of the manual-directive approach used in introducing the Navy Shore Establishment Work Measurement System was a questionnaire administered at a large Naval Training Center. This questionnaire was administered during the period of November 13-20, 1952, with the following objectives in mind:

(1) to evaluate the degree of understanding naval officers have of The Navy Shore Establishment Work Measurement System.

(2) to evaluate the attitude and degree of acceptance naval officers have toward The Navy Shore Establishment Work Measurement System.

(3) to determine the extent to which naval officers use the work measurement facts which they collect.
Constructing The Questionnaire

Before actually constructing the questionnaire, interviews were conducted with naval officers in order to get items for the questionnaire and to add a touch of realism to the wording and content of the instrument. Interviews were held with a cross-section of naval officers in the various departments and divisions at Naval Shore Station "A" and at Naval Shore Station "B," both being large Naval Training Centers. The items in the questionnaire are based upon information gathered from these interviews in the field.

In the preliminary stage of development, the officers of the Naval Reserve Officers Training Corps at The Ohio State University were very helpful in giving their reactions to individual questions and statements. As a result of this help, many of the original items were re-written or dropped. A pre-test questionnaire was then assembled and given to the Naval Reserve Officers Training Corps officers at the Ohio State University and to selected officers at the U. S. Naval Air Station, Columbus, Ohio. Appendix A contains a copy of the complete pre-test questionnaire.

Several changes were made in the questionnaire as a result of the pre-test. The check-list of problems was reduced from 250 to 108 items. In addition, the multiple-choice questions were placed first in the instrument as it was suggested by naval personnel that they would serve as a warm-up for the check-list of problems. The multiple-choice items were re-arranged within themselves in an effort...
to make the answering of them more logical to the respondent. Appendix B contains a copy of the complete questionnaire in the final form in which it was administered.

**Administering The Questionnaire**

The first job in administering the questionnaire was to get the approval and endorsement of the Center Commander at Naval Shore Station "A." Evidence of his endorsement is presented in the Center Commander's memorandum, dated 13 November 1952, and reproduced in Figure 1. The questionnaires were given to 205 naval personnel who then performed administrative duties, together with another group falling in the category of officers who had had administrative experience within the last two years, but who were then teaching or performing duties other than administration. The latter group made up approximately 35 per cent of the total number responding to the questionnaire.

The procedure in getting the questionnaires distributed was to assemble the personnel in the various departmental groups for a brief meeting. At these meetings, the background and purpose of the questionnaire were explained briefly. The people were told in each case that no information they provided would be given to any naval personnel, except in totals. It was explained that a number had been stamped in the upper right-hand corner of the questionnaire and that this number would enable follow-up interviews to be held with the people responding to the questionnaire. A control card was prepared
From: Commander, Naval Training Center
To: Commanding Officer, Administrative Command
     Commanding Officer, Service School Command
     Commanding Officer, Recruit Training Command
     Commanding Officer, Marine Barracks

Subj: Ohio State Contractors Command Management Check List; submission of

1. The Naval Training Center is cooperating in the Navy Research Project in the field of Management Engineering being conducted by the Ohio State University. The initial phase in this project is to have a questionnaire completed by representatives of the various Commands during the next few days.

2. Addressees will be visited by representatives of the Ohio State group and the Management Engineering Office of AdCom in connection with the enclosed questionnaire. The Commander desires that full cooperation be given the representatives both in the distribution and execution of the questionnaires.

3. Since the Ohio State representatives will be aboard only a few days, it is important that the questionnaire be completed as soon as practicable, the same day it is received if possible.

/O/signed: (Center Commander)

Copy to:
AdCom
Admin. Dept.
First LT Dept.
Legal Dept.
Security Dept.
Pers. Dept.
Spec. Serv. Dept.
Chaplain Dept.
Commsy. & Supp. Dep
Medical Dept.
Dental Dept.
NavExamCtr
Navy Exchange
Commsy. Dept.
NADO

Ohio State Contractors
November 13, 1952

Command Management Check-off List No. 

Name: ..........................................................

(Indicate Command and Unit)

Billet Title: ................................................

Figure 1

NAVAL SHORE STATION "A"
CENTER COMMANDER'S MEMORANDUM, DATED 13 NOVEMBER, 1952
for each questionnaire with a corresponding number and with identifying information as to the name, rank, and billet of the person providing the information. This system proved very useful in conducting the follow-up interviews. A copy of the control card used is attached to the Center Commander's memorandum in Figure 1.

Out of the total of 205 questionnaires submitted, 194 were completed and returned—a return of 94.6 per cent.

Presentation and Analysis of the Data

As pointed out previously, the items in the questionnaire came from interviews and pre-testing in the field. The questions in Part I are designed to show the shades of understanding and belief about the subject matter. Tables I through VI summarize the responses to Part I of the questionnaire. In each case the percentages are computed on the basis of the total number of people who responded to each question, since only those people who said they knew something about work measurement were to answer the questions. The responses to the problem statements in Part II of the questionnaire are presented in summary form in Table VII, page 34.

The results of some items in the questionnaire have a direct bearing on the amount of understanding of the work measurement system which was introduced by means of a manual and directive. Prob-

18 It should be understood in evaluating the responses that The Navy Shore Establishment Work Measurement System had been introduced only in the common service areas of Public Works, Supply, Fiscal, and Industrial Relations.
ably the most outstanding result of the questionnaire is shown in Table I where it can be seen that 129 officers (64 per cent) reported that they knew nothing about the Navy Shore Establishment Work Measurement System. Only thirty officers (15 per cent) were familiar or very familiar with the Navy Shore Establishment Work Measurement report.

**TABLE I**

RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A" TO THE QUESTION, "HOW FAMILIAR ARE YOU WITH THE INTEGRATED NAVY-WIDE SHORE ESTABLISHMENT WORK MEASUREMENT SYSTEM?"

<table>
<thead>
<tr>
<th>Degree of Familiarity</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very familiar</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Familiar</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>Know of it</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>Unaware of it</td>
<td>129</td>
<td>64</td>
</tr>
<tr>
<td>(No response)</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>194</td>
<td>100</td>
</tr>
</tbody>
</table>

Another indication of the degree of understanding of the Navy Shore Establishment Work Measurement System is shown in Table II. Since all of the objectives listed are correct ones, it can be seen from this table that only 51 per cent of the people who said they
know something about the Navy Shore Establishment Work Measurement System were able correctly to identify the objectives of the system. In addition, item one in Table III shows that of the people who said they knew something about the system, 57 per cent did not remember what work units were used in the work measurement report they submitted.

### TABLE II

RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A" IN IDENTIFYING THE OBJECTIVES OF THE NAVY SHORE ESTABLISHMENT WORK MEASUREMENT SYSTEM

<table>
<thead>
<tr>
<th>Objective</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>To determine manpower requirements</td>
<td>18</td>
<td>29</td>
</tr>
<tr>
<td>To compare the efficiency in manpower utilization at one station with another</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>To report to the secretarial level manpower data necessary to support the annual budget</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>All of the above</td>
<td>33</td>
<td>51</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>64</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*This number does not include five people who said they were not certain of the objectives.
TABLE III
RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A"
TO THE YES-NO ITEMS
OF THE QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th></th>
<th></th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>(1) Do you happen to remember what factors are used as Work Units on the work measurement report submitted for your group?</td>
<td>25</td>
<td>33</td>
<td>43</td>
<td>57</td>
</tr>
<tr>
<td>(2) Does the present work measurement system aid you in explaining why your station may be &quot;over&quot; or &quot;under&quot; the Navy-wide standard?</td>
<td>12</td>
<td>36</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>(3) For your own use, do you presently use your own Work Unit to measure manpower utilization?</td>
<td>17</td>
<td>34</td>
<td>33</td>
<td>67</td>
</tr>
<tr>
<td>(4) Under the present system the Work Unit is finally determined at the secretarial level. Would you prefer to establish your own work unit?</td>
<td>29</td>
<td>25</td>
<td>54</td>
<td>46</td>
</tr>
</tbody>
</table>

How well naval personnel accept the work measurement system which was introduced by means of a manual and a directive is indicated by the responses on some of the items in the questionnaire. Table IV shows that 58 per cent of the respondents felt that the work units assigned them were either a poor indication, fair indi-
ocation, or no indication of the work done by their groups. In another question, the replies to which are presented in Table V, the people were asked to check which objectives of The Navy Shore Establishment Work Measurement System they felt the system is presently accomplishing. As Table V indicates, only 22 per cent of the respondents felt that the system was accomplishing all three of its objectives.

TABLE IV

RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A" INDICATING THE DEGREE TO WHICH THE WORK UNITS ASSIGNED THEM ARE REPRESENTATIVE OF THE WORK DONE

<table>
<thead>
<tr>
<th>Degree of being Representative</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent indication</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Good indication</td>
<td>16</td>
<td>35</td>
</tr>
<tr>
<td>Fair indication</td>
<td>13</td>
<td>29</td>
</tr>
<tr>
<td>Poor indication</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>No indication</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>45</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

19 And as shown in item four of Table III, 54 per cent of the respondents would prefer establishing their own work units.
TABLE V

RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A"
INDICATING WHICH OF ITS OBJECTIVES
THE NAVY SHORE ESTABLISHMENT
WORK MEASUREMENT SYSTEM IS
PRESENTLY ACCOMPLISHING

<table>
<thead>
<tr>
<th>Objective</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determining manpower requirements</td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td>Comparing effective utilization of manpower at like stations</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Providing data necessary to support the annual Navy-wide budget</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>All of the above</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>None of the above</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>TOTALS</td>
<td>67</td>
<td>100</td>
</tr>
</tbody>
</table>

While most of the responses to the questionnaire items do not indicate positive acceptance of work measurement, Table VI shows that the responses are not all in one direction. When the people were asked, "Using work measurement, to which of the following degrees do you feel it is advantageous to compare your department with a similar department at another shore station," only 26 per cent of
the respondents reacted negatively to the value of such comparisons.

### TABLE VI

RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A" TO THE DESIRABILITY OF COMPARING SIMILAR DEPARTMENTS AT LIKE STATIONS

<table>
<thead>
<tr>
<th>Degree of Desirability</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A good way to measure relative efficiency</td>
<td>21</td>
<td>32</td>
</tr>
<tr>
<td>Gives some idea of effectiveness</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>Only slightly comparable</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Such comparison gives a false impression</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>65</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

An indication of the use made of the work measurement system which was introduced by means of a manual and a directive is given in the replies to two of the items presented in Table III, page 29. As item (2) in Table III shows, 75 per cent of the personnel responding stated that the present system does not aid in explaining why their station is "over" or "under" the Navy-wide standard. Item (3)
in Table III reveals that 67 per cent of the respondents said that they did not then use their work units to measure manpower utilization.

The way in which the naval personnel at Naval Shore Station "A" responded to the problem statements in Part II of the questionnaire is shown in Table VII. It should be noted that the percentages which are shown in Table VII were computed on the basis of the total of 194 people replying to the questionnaire. The fact that the percentages in the "is a problem" column are so low and the percentages in the "does not apply" column are so high is due partly to the fact that 129 of the people said previously (See Table I) that they were unaware of the Navy Shore Establishment Work Measurement System.

Probably the most significant point which Table VII shows is that with the exception of the last three problem statements in the table, all the statements were checked as a problem by 50 per cent or more of the personnel who said they were "familiar" or "very familiar" with the Navy Shore Establishment Work Measurement System. The fact that so many of these statements were checked as problems by so many of the respondents who are familiar with the work measurement system is an indication that there is far from complete understanding and acceptance of the Navy Shore Establishment Work Measurement System which was introduced by means of a manual and a directive.
TABLE VII
RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A"
TO THE PROBLEM STATEMENTS IN PART II
OF THE QUESTIONNAIRE
(All Responses In Per Cents)

<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Is A Problem</th>
<th>Does Not Apply</th>
<th>No Problem</th>
<th>No Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How standard rates are chosen for work measurement</td>
<td>11</td>
<td>69</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Work measurement does not establish clear accountability</td>
<td>11</td>
<td>69</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Work measurement disregards importance of maintaining steady work-force, even if work load fluctuates</td>
<td>11</td>
<td>59</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Work measurement does not disclose causes of poor manpower utilization</td>
<td>11</td>
<td>73</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Determining the number of people necessary per unit of work</td>
<td>10</td>
<td>51</td>
<td>38</td>
<td>1</td>
</tr>
<tr>
<td>How standard rates are set for work measurement</td>
<td>10</td>
<td>73</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Understanding work units for work measurement</td>
<td>9</td>
<td>66</td>
<td>24</td>
<td>1</td>
</tr>
</tbody>
</table>
### TABLE VII (Continued)
RESPONSES OF PERSONNEL AT NAVAL SHORE STATION "A" TO THE PROBLEM STATEMENTS IN PART II OF THE QUESTIONNAIRE
(All Responses In Per Cents)

<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Is A Problem</th>
<th>Does Not Apply</th>
<th>No Problem</th>
<th>No Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work units for work measurement report used at your station not comparable to work done at other stations</td>
<td>8</td>
<td>76</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Local commands do not set work units for work measurement</td>
<td>8</td>
<td>79</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Direct labor time related to productive time (for Work Measurement Report)</td>
<td>8</td>
<td>72</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Little you can do about poor showing on work measurement report</td>
<td>6</td>
<td>44</td>
<td>46</td>
<td>4</td>
</tr>
<tr>
<td>Preparing work measurement report</td>
<td>5</td>
<td>73</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>How overhead time is related to non-productive time, for work measurement report</td>
<td>5</td>
<td>71</td>
<td>23</td>
<td>1</td>
</tr>
</tbody>
</table>
Cautions in Interpreting the Results of the Questionnaire

There are limitations in drawing generalizations from the questionnaire data reported here. Caution should be used in interpreting the data reported here because there may be unknown factors which are operating to cause officers to overstate or understate their reactions. Officers may be giving "public" rather than "private" responses. Another limitation of the questionnaire data is that the number of officers surveyed is probably not large enough to allow generalizations to be made indiscriminately. Despite the limitations, it is felt that the reports on the items on the questionnaire do give valuable indications and leads. Moreover, one of the reasons for conducting the follow-up interviews which are described in the following section was to check on the validity of the responses received in the questionnaire.

D. FOLLOW-UP INTERVIEWS AT NAVAL SHORE STATION "A"

In order to get further evidence of the understanding and acceptance by the people at the local command of the Navy Shore Establishment Work Measurement System, follow-up interviews were conducted with naval personnel at Naval Shore Station "A." These interviews were conducted during the period of November 17-20, 1952, with personnel who were actively involved in the work measurement system which was introduced by means of the manual-directive approach. The control card attached to the questionnaire (see Figure 1) was used
to locate interviewees whose questionnaires indicated that they would be good sources of information in regard to the Navy Shore Establishment Work Measurement System. The responses given on the questionnaire revealed pretty accurately the people who really were familiar with the work measurement system.

Conclusions from the Interviews

Some interesting comments and reactions came from the officers interviewed. These are summarized and illustrated below:

(1) There is a low degree of understanding and acceptance of the Navy Shore Establishment Work Measurement System because officers at the local command were not given an opportunity to participate in developing or establishing any part of the system.

The officers interviewed expressed very strongly a feeling of resentment that "the bureau" did not consult the local people at all in establishing the work measurement system. The feeling seemed to be that since "the bureau" chose to ignore any special or unusual circumstances at the local level, the officers would go ahead and comply with the letter of their instructions but certainly not with the spirit of them. In other words, the Work Measurement Report fell into the category of "just another report" to get in with the minimum effort and compliance.

(2) Officers concerned do not believe that the work units assigned by the Bureau are representative of the work done by their groups.

One officer in a fiscal department expressed this feeling by saying that every month he had some of his people working at settling
old accounts of former disbursing officers, yet the work these people did contributed nothing to the workload as shown by the Work Measurement Report. And there were other examples cited of people doing essential work which did not show up in the Work Measurement Report.

(3) Officers believe the Work Measurement System can be manipulated to make the local department look good or bad.

This conclusion is related to the feeling that those at the bureau level do not know very much about the special conditions at the local command level. Officers were not reluctant to say, moreover, that they found it easy to manipulate the figures to make themselves look better or worse than in the last reporting period. The manipulation of figures was reported by officers to be the easiest in the man-hours expended column of the report. For example, when the people worked at night to get the workload out, it was convenient not to report these man-hours expended.

(4) Naval personnel who participate in the Navy Shore Establishment Work Measurement System do not use the work measurement facts which they collect for the Work Measurement Report.

In no case did the people interviewed say they found ways to use the work measurement data. In fact, the interviewees were quick to point out that at the local level they could see no basis for the claim that work measurement is a valuable management tool. One officer put it this way, "We frankly don't put any faith in the Work Measurement Report. The report is ridiculous as far as we are concerned."
Summary. The follow-up interviews add supporting evidence in the direction that the Navy Shore Establishment Work Measurement System is not well accepted at the local command level. The people do not believe in the Work Measurement Report which they send in to the Bureau and do not find uses for the work measurement facts they collect. This gives further evidence to the point that the use of a work measurement manual along with a directive from higher authority is a relatively ineffective means of introducing work measurement to naval personnel at the local command level.

E. A STUDY OF THE NAVY SHORE ESTABLISHMENT WORK MEASUREMENT SYSTEM FOR PUBLIC WORKS TYPE FUNCTIONS AT NAVAL SHORE STATION "A"

In wanting to get additional evidence concerning the effectiveness of the manual-directive approach in introducing work measurement at the local command level, a special study was made of the Navy Shore Establishment Work Measurement System for Public Works Type Functions at Naval Shore Station "A." This study was made from February 9-12, 1953, and involved studying work measurement in the Public Works Department. The method of investigation was to interview the people involved in the work measurement system and to study the work measurement reports which had been submitted in the past. The findings and conclusions from this investigation are summarized and discussed below.

(1) Indocuration of local officers in the work measurement system is inadequate.
The study of work measurement in the Public Works Department revealed that very few of the officers in the department have a thorough knowledge of what goes into the Work Measurement Report. The job of compiling the report has been delegated to one of the junior officers. He is by far the best informed on the subject, yet his knowledge is mostly of the mechanics of the thing. Among some of the other officers, for example the maintenance officer, there is a vague sort of understanding of work measurement, but little acceptance of its implications or possibilities as a management aid.

(2) There is a feeling that standards set for the local station by the Bureau are not realistic and that valid comparisons among different stations cannot be made.

Another finding having to do with the acceptance of the Navy Shore Establishment Work Measurement System was the feeling on the part of the people in the Public Works Department that the standards set by the Bureau are unrealistic and do not take into account variations in local conditions. The people interviewed expressed the feeling that intangibles such as climate, type and age of equipment, and types and number of maintenance shops exert strong influences in determining local efficiency. The people at the local level are convinced that the advantages and disadvantages resulting from local peculiarities do not tend to cancel themselves out on an over-all basis. For example, under the Public Works subfunction covering "fresh and salt water," the work unit is not applicable to the local situation at Naval Shore Station "A" because this is the only station in the Navy which must process and purify as well as distribute
the water. Hence, Naval Shore Station "A" is always relatively inefficient in this subfunction according to the standard yardstick, because no allowance is made in the work unit for processing the water. It was also pointed out that under the subfunction, "Maintenance of the active buildings," type of construction and age of buildings largely determine the extent of maintenance necessary. A very large new building requiring little maintenance could greatly influence the performance index at the local station.

(5) Variances from the standard are explained by stock alibis.

An indication of the lack of acceptance of the Navy Shore Establishment Work Measurement System is the fact that variances from the standard are explained by stock alibis which are pulled from the file each quarter. Instead of making actual surveys to see why the variances occur, the variances are covered each quarter by standard excuses. The people interviewed did not seem at all reluctant to operate in this manner since they did not believe the standards imposed upon them are realistic anyway.

(4) It is relatively easy to "manipulate" the work measurement figures to the advantage of the local station.

For example, work which is defined as unmeasured work can be manipulated to circumvent the intent of the work measurement system. By failing temporarily to follow adequate preventive maintenance policies, deferred maintenance might then be handled through repair or rehabilitation projects costing more than $5,000. Such projects costing more than $5,000 are not accounted for in the work measurement-
The people do not see any valuable uses for work measurement as a management tool.

Despite the fact that the people in the Public Works Department have been told that work measurement is a valuable management tool, there is no evidence that the local people see any such use for work measurement. In fact, the evidence is that they do not even make a study or analysis of the quarterly Work Measurement Report.

(6) There appears to be a definite hostile attitude toward the Navy Shore Establishment Work Measurement System.

The general feeling expressed toward work measurement in the Public Works Department was one of hostility. Evidence of this hostility came out particularly in the form of the following questions which were frequently encountered: (a) Of what use is the Work Measurement Report on the local level? (b) How do you determine whether the quality factor of your maintenance policy is congruent with the "ideal" determined by the median? (c) Does the Bureau eventually expect to distribute budgetary funds according to a "standard yardstick" rate? It appeared that questions such as the above must be answered adequately before any complete acceptance of the Navy Shore Establishment Work Measurement System is forthcoming.
F. A STUDY OF THE NAVY SHORE ESTABLISHMENT WORK MEASUREMENT SYSTEM FOR PUBLIC WORKS TYPE FUNCTIONS AT NAVAL SHORE STATION "O"

At different times between April 2 and 14, 1955, contact was made with personnel in the Public Works Department at Naval Shore Station "O" in order to analyze the operation of the Navy Shore Establishment Work Measurement System in that department. The purpose was to look for further evidence of acceptance and use at the local level of the Navy Shore Establishment Work Measurement System and to check on the findings and conclusions from the study of the Public Works Department at Naval Shore Station "A." As in the study at Naval Shore Station "A," the method was to interview the people involved in the work measurement system and to study the work measurement reports which had been submitted in the past. The findings and conclusions from this investigation are summarized and discussed below.

(1) Indoctrination of local officers in the Work Measurement System is inadequate.

While several of the officers in this Public Works Department seemed to have a general idea of their work measurement system and of the work measurement report submitted to the Bureau, it was concluded that the work measurement indoctrination of the local officers was far from complete. The major responsibility for the work measurement report was given to a civilian employee who, of course, did not make any of the major policy decisions of the department. Consequently, there were officers in the department who were not at all familiar with the work measurement report and had no opportunity for
using the work measurement facts in running their divisions. In con-
trast to the situation found at Naval Shore Station "A," the depart-
ment head, however, did appear to have a good understanding of work
measurement and believed in its implications and potentialities.

(2) There is a feeling that comparisons can be made among
different naval stations if explanations of local differ-
ences are accepted.

As contrasted to the strong feeling at Naval Shore Station "A,"
that valid comparisons cannot be made among different stations, the
feeling among the key Public Works people at Naval Shore Station "O"
seemed to be that after the work measurement system has been operat-
ing for a period of years, comparability among stations can be a-
chieved. It was explained further that this comparability would
never be perfect, but that explanations of differences in local con-
ditions should be accepted in cases where the local conditions vary.

And so the Public Works Department at Naval Shore Station "O" makes
an explanation on each Work Measurement Report of the subfunctions
whose variances from standard are caused by local conditions. The
following explanations, taken from one of the work measurement reports,
are given as examples of how the varying local conditions (both fav-
orable and unfavorable) are explained:

Refuse Collection and Disposal. Figures remain high in this
category because it is still necessary to haul refuse several
miles to the Marine Corps dump including transit through new
construction. Present schedule calls for incinerator repairs
completed during third quarter and placing of Dempster equip-
ment in service at approximately the same time.

Quarters. Quarters were overhauled quite completely during
the previous fiscal year and require only small maintenance
at present.
Self-propelled Automotive Vehicles (Maintenance). Maintenance figures low because of nearly entirely new equipment and because a large amount of repair work was performed on refuse vehicles which is not chargeable to this subfunction.

(3) Some uses are seen for the work measurement facts.

There is evidence that some analysis is made of the quarterly Work Measurement Report. In fact, when it was put to him directly, the Public Works Department head was able to mention the following uses of the work measurement report:

(a) it serves as a guide to tell us where we are overexpending or underexpending our manpower.

(b) it helps the officer going to a new station to get an idea of how evenly his manpower is being expended and to see where his problems are.

(c) it helps bring about better equalization of money among the various Navy Bureaus.

Other people in the department were unable to see uses for the work measurement facts. They seemed to think of the work measurement facts as being "just another report to send in to the Bureau." One officer said, "The work measurement information we send into the Navy Department will not help us much locally."

(4) There does not appear to be a hostile attitude toward the Navy Shore Establishment Work Measurement System.

In contrast to the hostile attitude toward work measurement found in the Public Works Department at Naval Station "A," there was no indication of such an attitude in the comparable department at Naval Shore Station "C." Although the people at Naval Shore Station "C" did not accept the work measurement system one hundred per cent by any means, there seemed to be present a receptive, open-
minded attitude, devoid of any great fear of what "the Bureau" may say about the subfunctions where there are variances from the standard. For example, it was stated that when there are good reasons for variances from the standard, these variances should be explained on the work measurement report which is sent in to the Bureau. It was explained that if the Bureau still comes back and asks why the variances occurred, that means there is something wrong with the person in the Bureau who is analyzing the reports—so why worry about it.

(5) It is relatively easy to "manipulate" the work measurement figures to the advantage of the local station.

The study at Naval Shore Station "C" provided additional evidence to support the conclusion that it is relatively easy to "manipulate" the work measurement figures. For example, in order to make themselves look better (not so far from the standard) in the subfunction having to do with the upkeep of the grounds, the Public Works Department took the manhours spent in dumping the hedge and other trimmings and put them in with the manhours spent in the subfunction "Refuse Collection and Disposal." It was also explained that non-recurring maintenance can be dropped or prolonged in order to make the work measurement report look good, even though such practices will cost the Navy more in the long run. As one officer put it, "We told you before that if the pressure is on us, we manipulate the figures to get the pressure off."
G. SUMMARY

This chapter reported evidence gathered in testing the hypothesis that the use of a work measurement manual along with a directive from higher authority is a relatively ineffective means of introducing work measurement to naval officers at the local command level. The Navy Shore Establishment Work Measurement System was used as a point of focus, since this system was introduced to the people in the field by means of a manual and directive from higher authority. The means used to gather evidence were (1) a questionnaire administered at Naval Shore Station "A"; (2) follow-up interviews at Naval Shore Station "A"; (3) a study of the Navy Shore Establishment Work Measurement System for public works type functions at Naval Shore Station "A"; and (4) a study of the Navy Shore Establishment Work Measurement System for public works type functions at Naval Shore Station "B." In judging the effectiveness of the work measurement system introduced by means of a manual and directive, the following criteria were kept in mind:

(1) do naval officers understand the work measurement system? (2) do naval officers accept the work measurement system? (3) do naval officers use the work measurement system?

While the evidence gathered is not completely one-sided, the great weight of evidence points to the fact that naval officers at the local command level do not understand, accept, or use the work measurement system which was introduced by means of a manual-directive approach. Most of the people in the field who know any-
thing about the work measurement system are following it mechnani-
cally—complying with the instructions but feeling that the work
units assigned them are not representative of the work done—manip-
ulating the figures to get the pressure off their departments—not
really having sufficient insight into it to accept it as an integral
part of their operations—not using it or even seeing its potential-
ities as a valuable management tool. All this leads to the conclu-
sion of the chapter which is that the use of a work measurement man-
ual along with a directive from higher authority is a relatively in-
effective means of introducing work measurement to naval officers
at the local command level.
Chapter III

EXPERIMENTAL INTRODUCTION OF WORK MEASUREMENT

AT NAVAL SHORE STATION "A"

If, as was concluded in Chapter II, the use of the manual-directive approach is a relatively ineffective means of introducing work measurement to naval personnel at the local command level, the question then arises as to what is a better approach. How do you get naval personnel to understand, accept, and use a new management tool such as work measurement?

This chapter reports some experimental work which was conducted in search of an effective method of introducing work measurement and to find what it takes to get naval personnel at the local command level to understand, accept, and use work measurement. A large naval training center was used for the experimental study. The first part of the chapter describes the procedure followed during the introduction period of the experimental work. The results observed during the introduction period are then reported, followed by a description of the procedure during the follow-up period. The last part of the chapter deals with what happened to the work measurement systems in the nine experimental groups after outside help was withdrawn and the people were left to shift for themselves. Throughout the chapter, the experimental evidence is organized into: (1) results pertaining to the understanding of work measurement; (2) results pertaining to the
acceptance of work measurement; and (3) results pertaining to the use of work measurement.

A. Procedure Followed During the Introduction Period, February 9-19, 1955

Endorsement of Center Commander and Selection of Experimental Groups

The first job in the experimental introduction of work measurement at Naval Shore Station "A" was to get the approval and cooperation of the Center Commander. His endorsement was obtained after the background facts and purpose of the proposed experimental work were explained to him. Evidence of his endorsement is contained in the memorandum which he sent to the participating departments. This memorandum is reproduced, minus all identifying information, in Figure 2.

Getting the endorsement of the Center Commander involved also the matter of deciding which departments would be used in the experimental work. After taking into account the wishes of the Center Commander and after making sure of a good cross-sectional representation, the following nine groups were selected:

(1) Personnel Department
(2) Clothing and Small Stores Division
(3) Commissary Department
(4) Electronic Technician School
(5) Seaman Guard Division
(6) Barracks Division
(7) Legal Department
From: Commander, Naval Training Center

To: Commanding Officer, Administrative Command
Commanding Officer, Service School Command

Subj: Ohio State Contractors Establishment of Work Measurement Systems Progress Report; Submission of

1. The Naval Training Center is further cooperating in the Navy Research project in the field of management engineering being conducted by the Ohio State University. As the next step in this project, certain departments have been selected to participate in the establishment of work measurement systems especially designed for the use of local command units.

2. Addresses will be visited by representatives of the Ohio State group and the Management Engineering Division of the Administrative Command in connection with this project. The Commander desires that full cooperation be given these representatives.

3. Participating departments are requested to submit to the Center Commander by 20 March 1953, a report covering progress made in connection with this project during the ensuing period.

/ Signed: / (Center Commander)

cc: Dental Department
Commissary Department
Security Department
Personnel Department
Legal Department
First Lieutenant Department
Administration Department
Electronic Technician School
First Two Group Meetings

After checking with the officer in charge of each experimental group, arrangements were made to hold group meetings with the key people in each department or division. The number of people attending these small group meetings varied from two to ten, with the average number being about seven. At the first group meeting, a brief explanation was given of the background and purpose of the experimental work. Before anything was said about the subject of work measurement, the people in the groups were asked to complete a "Work Measurement Information Form," which had been devised to check the present understanding and attitude of the people toward work measurement. This form is presented in Appendix C. It was explained to the participants that the purpose of "The Work Measurement Information Form" was not primarily to test the people themselves, but to assist in finding and evaluating an effective means of introducing work measurement to naval personnel at the local command level. The people were told that the "Work Measurement Information Form" would be given again at a later time, and they were asked to put their names on the forms so the names of the people taking the "before" and "after" tests could be matched accurately.

The remainder of the time at the first group meetings (which lasted from one to one and one-half hours) was given to the presenta-
tion of an introductory lecture on the meaning and basic concepts of work measurement. At the end of the meeting, the people were given copies of a Work Measurement Manual which had been written for naval personnel at the local command level.

A second meeting was held in each of the nine groups on the first or second day following the first group meeting. At this second meeting, the five steps to setting up a local work measurement system were introduced and discussed. The participants were encouraged to adapt these five steps to setting up a work measurement system in their own particular departments and divisions. Near the end of these second group meetings, a "Group Meeting Evaluation Form" was given to the participants in which they were asked to evaluate the group meetings which had been held and indicate their reaction to the worth of the small group meeting as a means for work measurement indoctrination and training. This evaluation form is presented in Appendix D. The responses received are reported later in this chapter under the heading "Results Observed During The Introduction Period."

**Individual Work With The People In The Nine Groups**

In the days following the second group meetings, individual contact was made with the officers whose job it would be to set up work measurement systems for their departments and divisions. In these conferences, the officers were given help in selecting appropriate work units and in setting up practical means of gathering and reporting the work measurement data. There was a good opportunity in these
interviews to play the role of the "listener" and to hear many expressions of feeling in regard to why work measurement would or would not work. In each case, a concerted attempt was made to find out what the important factors were which influenced the degree of acceptance found for work measurement.

It should be mentioned that some variation existed in the amount of individual help given the people in the different departments and divisions. Moreover, it became evident very early that there existed a great deal of variation in the amount of help the different officers needed in getting their local work measurement systems installed. Some officers would catch the idea of work measurement very quickly and could, without much help, adapt the basic concepts to their own situations. Others appeared to need a lot of help and explanation in getting a system into operation.

Third Group Meetings

About one week after the first group meetings, and after working individually with the key people, a third group meeting was held in each of the nine departments. The purpose of this third meeting was to administer the re-test of the "Work Measurement Information Form," and to discuss progress thus far in getting the work measurement systems installed. In these meetings, additional attitudinal and operational problems were observed. A number of the people expressed freely their ideas and feelings about how to get naval personnel to understand, accept, and use work measurement.
Field Logs

Throughout the course of the experimental introduction of work measurement, field logs were kept to record all kinds of observations. Emphasis was placed on documenting problems or difficulties encountered and dominant attitudes of participating personnel.

B. RESULTS OBSERVED DURING THE INTRODUCTION PERIOD

Keeping in mind that the primary purpose of the experimental introduction of work measurement at Naval Shore Station "A" was to get some insight into what it takes to get naval personnel at the local command level to understand, accept, and use work measurement, the results observed during the introduction period are organized into the following headings: (1) results pertaining to the understanding of work measurement; (2) results pertaining to the acceptance of work measurement; and (3) results pertaining to the use of work measurement. The results reported come from: (1) the evaluation forms used; (2) field logs kept; (3) on-the-spot observations of the installation of local work measurement systems; and (4) personal interviews with personnel involved in setting up their own work measurement systems.

Results Pertaining To The Understanding Of Work Measurement

(1) Results of the "Work Measurement Information Form"

One tangible result of the experimental introduction of work measurement at Naval Shore Station "A" was a definite gain in understanding of work measurement as indicated by the "before" and
"after" scores on the "Work Measurement Information Form." Table VIII presents a summary of the results of the first thirteen questions. See Appendix C for a copy of the complete "Work Measurement Information Form." Question fourteen is an attitude question, the responses to which are reported later in this chapter. Table VIII presents the results for eight groups instead of nine, due to the fact that circumstances made it physically impossible to get one group together to administer the "after" test.

It can be seen from Table VIII that before anything was said about work measurement, fifty-one people achieved a total of 253 correct answers on the "Work Measurement Information Form." After two group meetings and after working individually with these people, they were able to get a total of 761 correct answers. The average percentage of total possible correct answers was 23.8 per cent before and 71.1 per cent after the group meetings and individual consultation. This shows a large gain in knowledge of the facts of work measurement.

(2) Results of the "Group Meeting Evaluation Form"

The group meeting evaluations give some additional evidence pertaining to the question of what it takes to achieve understanding of work measurement among naval personnel at the local command level. The first page of the "Group Meeting Evaluation Form" which was given to the people in the nine groups is presented in Figure 5; a summary of the responses on the first page are noted on the form in Figure 5.
Table VIII

RESULTS OF THE FACTUAL QUESTIONS ON THE WORK MEASUREMENT INFORMATION FORM ADMINISTERED AT NAVAL SHORE STATION "A"

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number of People</th>
<th>&quot;Before&quot;</th>
<th>&quot;After&quot;</th>
<th>&quot;Before&quot;</th>
<th>&quot;After&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>8</td>
<td>12</td>
<td>132</td>
<td>7</td>
<td>78</td>
</tr>
<tr>
<td>Group 2</td>
<td>2</td>
<td>4</td>
<td>55</td>
<td>10</td>
<td>79</td>
</tr>
<tr>
<td>Group 3</td>
<td>8</td>
<td>25</td>
<td>110</td>
<td>15</td>
<td>65</td>
</tr>
<tr>
<td>Group 4</td>
<td>4</td>
<td>55</td>
<td>68</td>
<td>63</td>
<td>81</td>
</tr>
<tr>
<td>Group 5</td>
<td>10</td>
<td>47</td>
<td>135</td>
<td>22</td>
<td>64</td>
</tr>
<tr>
<td>Group 6</td>
<td>8</td>
<td>62</td>
<td>114</td>
<td>37</td>
<td>68</td>
</tr>
<tr>
<td>Group 7</td>
<td>4</td>
<td>14</td>
<td>61</td>
<td>17</td>
<td>73</td>
</tr>
<tr>
<td>Group 8</td>
<td>7</td>
<td>38</td>
<td>108</td>
<td>26</td>
<td>73</td>
</tr>
<tr>
<td>Totals</td>
<td>51</td>
<td>255</td>
<td>761</td>
<td></td>
<td>XXX</td>
</tr>
</tbody>
</table>

Average proportion of total possible correct answers:

Before = 23.6%
After = 71.1%
GROUP MEETING EVALUATION FORM

Id the group meeting help you get the meaning of work measurement?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>18</th>
<th>15</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>No help</td>
<td>Little help</td>
<td>Some help</td>
<td>More than average help</td>
<td>Great help</td>
</tr>
</tbody>
</table>

Were the purposes of the meeting made clear to you? (Did you know what the group was trying to do?)

<table>
<thead>
<tr>
<th>1</th>
<th>0</th>
<th>8</th>
<th>26</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all clear</td>
<td>Vague</td>
<td>Partially clear</td>
<td>Clear enough</td>
<td>Completely clear</td>
</tr>
</tbody>
</table>

On the basis of your experience in this meeting, rate the worth of the small group meeting as a means for work measurement indoctrination and training.

<table>
<thead>
<tr>
<th>0</th>
<th>0</th>
<th>16</th>
<th>21</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worth nothing</td>
<td>Helps very little</td>
<td>It helps</td>
<td>Helps a lot</td>
<td>Absolutely necessary</td>
</tr>
</tbody>
</table>

---

Figure 5

RESULTS OF GROUP MEETING EVALUATION FORM
USED AT NAVAL SHORE STATION "A"
GROUP MEETING EVALUATION FORM

Date of Meeting

Organizational Unit

Number in Group

A. Did the group meeting help you get the meaning of work measurement?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>18</th>
<th>15</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>No help</td>
<td>Little help</td>
<td>Some help</td>
<td>More than average help</td>
<td>Great help</td>
</tr>
</tbody>
</table>

B. Were the purposes of the meeting made clear to you? (Did you know what the group was trying to do?)

<table>
<thead>
<tr>
<th>1</th>
<th>0</th>
<th>8</th>
<th>26</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all clear</td>
<td>Vague</td>
<td>Partially clear</td>
<td>Clear enough</td>
<td>Completely clear</td>
</tr>
</tbody>
</table>

C. On the basis of your experience in this meeting, rate the worth of "the small group meeting" as a means for work measurement indoctrination and training.

<table>
<thead>
<tr>
<th>0</th>
<th>0</th>
<th>16</th>
<th>21</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worth nothing</td>
<td>Helps very little</td>
<td>It helps a lot</td>
<td>Absolutely necessary</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5

RESULTS OF GROUP MEETING EVALUATION FORM

USED AT NAVAL SHORE STATION "A"
Of the 45 people evaluating the group meetings, 42 per cent said that the meeting was of some help, 35 per cent indicated that it was of more than average help, and 21 per cent thought that it was of great help, in getting the meaning of work measurement. Nineteen per cent said the purposes of the meeting were partially clear, 60 per cent indicated they were clear enough, and 19 per cent thought they were completely clear. In rating the small group meeting as a means for work measurement indoctrination and training, 57 per cent said it helps, 49 per cent indicated it helps a lot, and 14 per cent thought it was absolutely necessary. The latter ratings tend to suggest the need for group meetings in achieving understanding of work measurement.

The results of the group meeting evaluations also included comments concerning what was wrong and what was liked about the group meetings. Table IX summarizes the comments on what was wrong and Table X summarizes the comments on what was liked about the group meetings. These comments give additional evidence of the importance of being able to point out specific applications of work measurement and of the potentialities of the group meeting in bringing about greater understanding of work measurement. In addition, the comments received reflect the fact that many of the people were sufficiently stimulated to write out their reactions and evaluations of the meetings they attended.
Table IX

SUMMARY OF EVALUATION OF GROUP MEETINGS AT NAVAL SHORE STATION "A"
AS SHOWN BY ANSWERS TO THE QUESTION,
"IN YOUR OPINION WHAT WAS WRONG WITH THE MEETING?"

<table>
<thead>
<tr>
<th>COMMENT</th>
<th>No. of comments of this type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of application of material to own department</td>
<td>7</td>
</tr>
<tr>
<td>Too theoretical—lack of practical time—proven examples on the local level</td>
<td>5</td>
</tr>
<tr>
<td>Work measurement does not apply to own department</td>
<td>4</td>
</tr>
<tr>
<td>Lack of group discussion</td>
<td>4</td>
</tr>
<tr>
<td>Strayed from the main point, especially during group discussion</td>
<td>4</td>
</tr>
<tr>
<td>Unavoidable outside distractions</td>
<td>3</td>
</tr>
<tr>
<td>Lack of time for details and emphasis upon end result</td>
<td>3</td>
</tr>
<tr>
<td>Would have helped to work out specific problems</td>
<td>2</td>
</tr>
<tr>
<td>Would help to read manual before group meeting</td>
<td>2</td>
</tr>
<tr>
<td>Lack of thorough knowledge of work measurement by representative</td>
<td>1</td>
</tr>
<tr>
<td>Meeting moved too slowly</td>
<td>1</td>
</tr>
<tr>
<td>Meeting was opened to questions before foundation was thoroughly laid</td>
<td>1</td>
</tr>
<tr>
<td>Individual instruction is needed since each person has his individual problems</td>
<td>1</td>
</tr>
<tr>
<td>Nothing wrong—good meeting</td>
<td>7</td>
</tr>
</tbody>
</table>
Table X

SUMMARY OF EVALUATION OF GROUP MEETINGS AT NAVAL SHORE STATION "A" AS SHOWN BY ANSWERS TO THE QUESTION, "WHAT DID YOU LIKE ABOUT THE MEETINGS?"

<table>
<thead>
<tr>
<th>COMMENT</th>
<th>No. of comments of this type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarified need for and purpose of work measurement</td>
<td>12</td>
</tr>
<tr>
<td>Possibilities of work measurement proved stimulating</td>
<td>9</td>
</tr>
<tr>
<td>Small group proved very beneficial</td>
<td>3</td>
</tr>
<tr>
<td>Recording was helpful</td>
<td>2</td>
</tr>
<tr>
<td>Well-conducted meeting</td>
<td>2</td>
</tr>
<tr>
<td>Frankness of representative and of discussion good</td>
<td>2</td>
</tr>
<tr>
<td>Group discussion method good</td>
<td>1</td>
</tr>
<tr>
<td>Diplomacy of representative</td>
<td>1</td>
</tr>
<tr>
<td>Logical and methodical presentation</td>
<td>1</td>
</tr>
<tr>
<td>Simplicity of presentation</td>
<td>1</td>
</tr>
<tr>
<td>Informality of presentation</td>
<td>1</td>
</tr>
<tr>
<td>Patience of instructor during discussion</td>
<td>1</td>
</tr>
<tr>
<td>Sincerity of leader and his consideration of extra time taken from duties</td>
<td>1</td>
</tr>
<tr>
<td>Monthly meetings of this sort would be beneficial</td>
<td>1</td>
</tr>
</tbody>
</table>
(3) Observations Recorded In The Field Logs

In talking and working with the department and division officers as they were installing their work measurement systems, the observation was made many times that most of the people had become familiar with the basic work measurement terminology. For example, officers who at the beginning of the experimental introduction of work measurement knew nothing about the subject were, after a week's time, using correctly such terms as "performance rate," "subfunction," and "work unit." This indicates that the officers gained some understanding of the subject. In trying to find out what it takes to get understanding of work measurement, the most important entries in the field logs, however, are those having to do with the problems and difficulties encountered in getting the people to see what work measurement is all about. The major log entries pertaining to problems of understanding are given below.

(a) Need better way of getting work measurement concept across. Need to work out more examples which can be applied to the various groups.

(b) There is value in letting people talk about work measurement to each other in a group. Those who catch on quickly are sometimes very helpful in explaining or clarifying a point for others in the group.

(c) Varied presentation with this group. Started with more of an explanation of work measurement—including war bond example. Think this represented a definite improvement. Began to wonder if it helps at all to give the historical picture in the initial session.

(d) Began to argue over work units very early in the meeting. In the large departmental group, had quite a bit of debate about which work units to use.
(e) There seems to be confusion between work measurement at the Bureau and Secretary of Navy level and work measurement at the local department and division level.

(f) In the individual work with the people who are installing a work measurement system, the people often tend to talk in generalities about their particular situation. An effective way to avoid this talk in generalities is to ask the person about the organizational structure of the group and proceed to sketch the organizational structure as the person presents it.

(g) A common question (and problem in understanding) is how work measurement brings in or ignores the quality aspect of the work.

(h) Local groups are not interested in general information on work measurement nearly so much as they are concerned with specific information regarding their organization.

(i) Many departments already have a lot of facts for work measurement, but they need to be shown that work measurement affords a new and helpful approach.

The above-listed results give some leads concerning what it takes to get understanding of work measurement. Attention will next be directed to immediate results of the experimental work in regard to the acceptance of work measurement.

Results Pertaining To The Acceptance Of Work Measurement

(1) Responses to Question 14 on the "Work Measurement Information Form."

The people participating in the experimental introduction of work measurement at Naval Shore Station "A" were given an opportunity to express their attitude toward work measurement at the very beginning of the introduction period and again after the group meetings and individual consultation. Question 14 on the "Work Measurement Information Form" was designed to get at the feeling of the people
toward work measurement as it applied to their department. Table XI summarizes the responses to this question.

Table XI

SUMMARY OF RESPONDENTS FEELINGS TOWARD WORK MEASUREMENT AS IT APPLIES TO THEIR DEPARTMENTS (NAVAL SHORE STATION "A")

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>No. of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Do not consider work measurement essential in my department’s operation</td>
<td>0</td>
</tr>
<tr>
<td>(b) Undecided as to the merits of using work measurement in my department’s operation</td>
<td>4</td>
</tr>
<tr>
<td>(c) Tend to believe in using work measurement in my department, but have some important reservations</td>
<td>7</td>
</tr>
<tr>
<td>(d) Whole-heartedly believe in using work measurement in my department</td>
<td>0</td>
</tr>
<tr>
<td>(e) Feel that work measurement is an absolute essential for good management</td>
<td>4</td>
</tr>
<tr>
<td>(f) Do not know enough about work measurement to have very much of an attitude about its use in my department</td>
<td>34</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
</tr>
<tr>
<td>Free comment</td>
<td>1</td>
</tr>
</tbody>
</table>
As Table XI indicates, major changes in feeling toward work measurement are reflected in several categories. Before the group meetings and individual consultation, 67 per cent of the people indicated that they "did not know enough about work measurement to have very much of an attitude about its use in my department." Only 4 per cent indicated this feeling after the group meetings and individual consultations. Likewise, before the group meetings and individual consultations, only 14 per cent said they "tend to believe in using work measurement in my department, but have some important reservations." In the "after" test, 45 per cent indicated this feeling. In another category, "undecided as to the merits of using work measurement in my department," the number of people claiming this feeling changed from 8 per cent "before" to 29 per cent "after" the group meetings and individual work with the people. These results seem to indicate a major change from a poorly defined feeling about work measurement to a consideration of its merits or a tendency to believe in using it in their groups.

(2) Observations Recorded In The Field Logs

During the introduction period of the experimental introduction of work measurement at Naval Shore Station "A" an attempt was made to record observations that had a particular bearing on the acceptance of work measurement by the local people. These observations were recorded in the field logs and are presented below as evidence of some of the factors affecting acceptance.
(a) **said near the end of our talk that he likes the idea of going ahead and developing the work measurement system himself. He said, "Someone could come in and show me exactly how to do it, but I doubt if I would be too much impressed."**

(This comment may be interpreted as support for what might be called the "help them help themselves" approach in gaining acceptance.)

(b) Had difficulty in getting the people to be interested in the total picture. Many of the people seem to have a "micro-concept" of their work.

Had the feeling the group was not too interested in the general background information in Part I of the Manual.

Many of the people appear to be interested only in their own small section and do not care too much about the department (or station) as a whole.

(c) Difficult to get the people to accept work measurement for "local use"; they see top brass coming in and using work measurement as a whip.

(d) There seems to be a need for more ammunition to show the local department or unit head how work measurement can help him. There is a feeling that top management will use it against them.

(e) **Big problem—better way of emphasizing value of work measurement to the local command.**

(f) People predisposed not to give the thing a try. Have definite opinions but not willing to get facts to support them. "Thing won't work" sort of attitude.

(g) **A common reaction was to the effect that "we are unique and different; we have so many exceptions and peculiarities." This was to prove that work measurement did not apply to the department which saw itself as being different.**

(h) The people bring in extreme cases to show that work measurement cannot apply to them.

(i) Local groups have the pre-conceived notion that work measurement has as its main objective the reduction of personnel.

(j) **A department head may have a very negative attitude toward work measurement, yet in the group meeting some of the subordinate officers may become quite interested in its possi-**
The group meeting then may be a means of keeping work measurement from dying at the department head level.

People kept saying, "Isn't that what you want?" I replied, "Not what I want, but what I think you will want." This went over pretty well.

On numerous occasions it was evident that the Center Commander's memorandum asking for a progress report was an effective motivating force.

Results Pertaining To The Use Of Work Measurement

It was not expected that during the short introduction period (February 9-19, 1955) the participants would have had time to make any actual use of the work measurement facts. The uses of work measurement normally come after the mechanics of the system have been ironed out and after the work measurement reports begin to be analyzed. A later section of this chapter—"Results Observed During The Follow-up Period"—reports the uses actually found for work measurement by the participating personnel.

C. PROCEDURE FOLLOWED DURING THE FOLLOW-UP PERIOD

The participants in the nine experimental departments at Naval Shore Station "A" were revisited on March 23-24, 1955. The purposes of this visit were: (1) to observe what had been happening to the work measurement systems which had been started in February; (2) to review the work measurement reports which had been submitted to the Center Commander; (3) to discover the kinds of difficulties the people were experiencing in installing work measurement; and (4) to get additional reactions of naval personnel concerning the potentialities
of work measurement for them. It was explained to the participating personnel that a Revised Work Measurement Manual was being written, based on the experience gained during the introduction period. Copies of this revised second edition of the Work Measurement Manual were mailed to Naval Shore Station "A" on March 30, 1953.

A final follow-up visit was made to Naval Shore Station "A" during the last week in May, 1953. At this time, the third revision of the Work Measurement Manual was given to participating personnel as a replacement for the second edition. In this follow-up, there was an opportunity for further analysis of the work measurement data the participating departments had been keeping. In addition, an attempt was made to find out what specific uses the people had been able to make of their work measurement facts and how they felt about voluntarily continuing work measurement for their own use. These findings are reported in the next section on "Results Observed During The Follow-up Period."

The method used in the follow-up period consisted of personal interviews with participating personnel and analysis of each department's work measurement reports.

D. RESULTS OBSERVED DURING THE FOLLOW-UP PERIOD

The real test of the effectiveness of the approach used in the experimental introduction of work measurement at Naval Shore Station "A" rests in what happened to the work measurement systems after a lapse of time. What, if anything, happened after the initial group meetings and the individual work with the local people? What hap-
pened when outside help was withdrawn and the people were left to shift for themselves? Did the infant work measurement systems die of their own weight? Or, did they grow and develop as the local people began to see specific uses and potentialities of work measurement?

This section reports these kinds of "pay dirt" results which were observed during the follow-up period. As was done in reporting the results observed during the introduction period, these results are organized into the headings of: (1) results pertaining to the understanding of work measurement; (2) results pertaining to the acceptance of work measurement; and (3) results pertaining to the use of work measurement.

Results Pertaining To The Understanding Of Work Measurement

One of the most significant results of the experimental introduction of work measurement at Naval Shore Station "A" consisted of the work measurement reports which were submitted to the Center Commander. These reports contained actual operating data on the manhours expended, work units completed, and performance rates for each subfunction of the various divisions and departments. While there was variation in the quality and completeness of these reports, the fact that every group was able to present actual work measurement data is the best positive indication that the participants in the nine experimental groups had some understanding of work measurement. Appendix E contains some actual examples of the work measurement reports submitted.
Results Pertaining To The Acceptance Of Work Measurement

(1) Active Backing of Top Echelon Important to Acceptance

One follow-up result pertaining to acceptance was a realization of the great importance of the backing and interest of the head person in each echelon of the command. Observations and interviews indicated that if the commanding officer is interested in work measurement and actively backs it, the department heads are more apt to accept it and push it. If the department heads are interested in work measurement and actively back it, the division heads are more apt to accept it and push it. The same result seemed to hold all the way down the chain of command to the people who actually put in the manhours and turn out the work of the subfunctions.

(2) Fear of Accountability Affects Acceptance

It became clear that the inability of some people to see any value in work measurement was not necessarily due to a lack of intelligence, insufficient indoctrination, special conditions that made work measurement inapplicable, or any other rational reason. The real factor was a fear of accountability—a reluctance to have the work of their group measured.

(3) Voluntary Plans to Continue Work Measurement Beyond the Experimental Period

One of the best indications of the acceptance of work measurement by the officers at the local command level is shown by
what these people planned to do with their work measurement systems after the experimental period was terminated. When this question was put to them, six out of the nine experimental groups indicated in writing that they planned to continue their work measurement systems for their own use. There are presented below some statements of participating department and division heads in regard to their plans for voluntarily continuing their work measurement systems.

These statements were made in reports to the Center Commander, who at the request of the investigator, asked for comments and reactions about the value of work measurement for the people who had been giving it a try.

One department head reported:

—Because of the benefit already observed from the program it has been decided to continue it indefinitely in the ______ whether or not it is adopted for the entire Center.

A Service School Administrator said:

—It is the intent of the school to continue some form of work measurement for its own information and use.

Another department head had this to say:

—In most cases the present system is considered satisfactory. It is believed the work measurement system should be continued inasmuch as the time spent in compiling the figures is not excessive considering the value of the results.

Of the three groups who decided not to voluntarily continue their work measurement systems, one group made the following statement:

—Information gathered through use of present system is not helpful to department because present number of gates and roving patrols will be maintained unless otherwise directed or there is a major change in personnel attached to Naval Shore Station "A."

It is not considered profitable to continue this system by this department.
Results Pertaining To The Use Of Work Measurement

Three and one-half months after the introduction of work measurement in the nine groups at Naval Shore Station "A," a final check was made to see what specific uses the local people were making of the work measurement facts which they were collecting. Even in this relatively short period of time, a majority of the local officers seemed to have found sufficient use for their systems to decide voluntarily to continue them. The results of how work measurement was being used are presented below in the form of specific examples and statements of the value of work measurement. These examples came from follow-up interviews with the local officers and from statements made in the work measurement reports submitted to the Center Commander.

--As a consequence of the Navy personnel rotation policy, the personnel in one division were reduced from twenty-nine to twenty due to the fact that they had been unable to receive replacements for the people who were transferred. To adapt to these reductions, it was necessary to shift personnel around within the division; work measurement proved a helpful guide in this task.

--As a result of the work measurement reports which showed the time spent on writing examinations, the Service School Command has reorganized some of its schools in such a manner that examinations for several of the divisions teaching the same course are now being written by a specialized staff, instead of each division writing its own. This resulted in elimination of duplication of effort.

--One department head made the following statement in regard to the uses of work measurement in his department:

In the short time that work measurement has been a part of the office routine, it has proved that given sufficient time it will become an invaluable aid in the analysis of work flow and determining manpower requirements.
A Commissary Officer made the following reports:

Comparison of work measurement facts between operating galleys has been useful, although many factors enter into variations. However, a work measurement system serves to point up the variance and alerts a department to investigate these variances.

As a result of their work measurement system, this Commissary Department suggested closing two out of five galleys. One of the galleys was closed and it is anticipated the other will be closed shortly.

In addition, work measurement data disclosed different liberty systems in operation in the various galleys. Liberty and work periods are now standardized throughout the division.

Another division officer reported:

It is considered that work measurement will be of continuing value to the _________. In particular, it is believed that it will be of value in estimating personnel requirements, and will be an indication of possible need for management studies and improvements. However, until the work measurement system has been in effect for a much longer time, its value will be limited.

One division, as a result of the work measurement information compiled, questioned why a function of talking to people at a window and filing cards took so much time. This stimulated thinking in the direction of reducing the time for this operation. The department head decided to install Kardex equipment to accomplish this end. Work measurement information will be used to support a request for the equipment and to check the reduction in time achieved by using the new equipment. It is estimated that a saving of personnel by one-third can be realized, and that the equipment will pay for itself in one year as a result of these savings.

E. SUMMARY

This chapter has reported the experimental introduction of work measurement at a large naval shore station. The objective of the experimental work was to search for an effective method of introducing work measurement and to get some insight into what it takes to
get understanding, acceptance, and use of work measurement at the local command level. The results observed indicate that the small group meeting with resultant individual participation is a relatively effective means of introducing work measurement at the local command level, and that a manual and the active backing of the top echelon of command are also essential. Evidence pertaining to the understanding of work measurement was presented in the form of: (1) a large gain in knowledge on the "Work Measurement Information Form" after the group meetings and individual consultation; and (2) the fact that every group was able to present work measurement reports containing actual operating data on the manhours expended, work units completed, and performance rates for each subfunction. The best evidence pertaining to the acceptance of work measurement was the fact that six out of the nine experimental groups indicated in writing that they voluntarily planned to continue their work measurement systems after the experimental period terminated. Evidence pertaining to the use of work measurement was presented in the specific examples cited of how work measurement was being used by the people in the experimental groups.

It is concluded, therefore, that a self-applied, "help them help themselves" approach to work measurement has great promise and needs further try-out and evaluation.
Chapter IV

EXPERIMENTAL INTRODUCTION OF WORK MEASUREMENT
AT NAVAL SHORE STATION "C"

The experimental work reported in Chapter III contributed valuable evidence in the search for what it takes to get naval personnel to understand, accept, and use work measurement. From the experience at Naval Shore Station "A," it was concluded, however, that the "help them help themselves" approach needed further testing and that more experimental work was needed to get at the factors which influence understanding, acceptance, and use of work measurement at the local command level. Accordingly, experimental work was conducted on a larger scale at a different large naval training center. This chapter reports the experimental work conducted at this training center, which will be identified hereafter as Naval Shore Station "C."

The materials and evaluation forms used in the experimental work at Naval Shore Station "A" were revised and refined for use at Naval Shore Station "C." Instead of the nine experimental groups used at Naval Shore Station "A," twenty-three groups were involved in the experimental introduction of work measurement at Naval Shore Station "C." The first section of the chapter describes the procedure followed during the introduction period of the experimental work. The results found during the introduction period are then presented, followed by a description of the procedure used during the follow-up period. The next section presents the results observed during the follow-

-75-
up period. The chapter concludes with a summary of the experimental introduction of work measurement at Naval Shore Station "C."

A. PROCEDURE FOLLOWED DURING THE INTRODUCTION PERIOD, MARCH 25 TO APRIL 15, 1955

Endorsement of Center Commander

The first step in the experimental introduction of work measurement at Naval Shore Station "C" was to contact the center commander to get his cooperation and approval. The orientation of the center commander consisted of explaining to him the background and purpose of the proposed experimental work. It was explained to him what work measurement is and why it is a valuable tool in naval shore station management. Illustrations were given of how work measurement has already been used. The center commander seemed particularly interested in the experimental work which had already been carried on at Naval Shore Station "A."

The cooperation and approval of the center commander was received as is evidenced by the center commander's memorandum which was sent to all participating departments. This memorandum, which set the tone for the experimental work, is reproduced, minus all identifying information, in Figure 4.

Selection of Experimental Groups

In deciding which groups should participate in the experimental work, the main consideration was that there be a wide coverage of the station and that both those departments which were easily adaptable
FROM: Commanding Naval Training Center
TO: Commanding Officer, Administrative Command
Commanding Officer, Service School Command
Commanding Officer, Recruit Training Command

SUBJ: Ohio State Contractors Establishment of Work Measurement Systems
      Progress Report, submission of

1. The Naval Training Center is cooperating in a Navy research project
   in the field of management improvement at shore stations, which is placing
   special emphasis upon effective manpower utilization. The project
   is being conducted through the Ohio State University Research Foundation
   and was initiated by the Bureau of Naval Personnel.

2. Representatives from the Ohio State group will be aboard until 15
   April, to introduce one phase of such a management improvement program.
   Addresses will be visited by representatives of the Ohio State group
   and the Management Engineering Office of the Administrative Command in
   connection with establishing work measurement systems at the local level.
   The Commander desires that full cooperation be given these representa­
   tives.

3. Participating departments are directed to submit to the Center Com­
   mander on 1 May 1955 a report covering progress made to that date from
   the date of installation of a system; and a second report on 1 June 1955
   covering the period 1 May to 1 June 1955. It is suggested these progress
   reports cover the following areas:

   (a) Copies of actual work measurement data collected.
   (b) Any summary reports of the data collected.

4. On 22 May participating departments are directed to submit a report
   evaluating the following:

   (a) The usefulness of a local work measurement, based on limited
       time it will have been in operation.
   (b) Estimate of the time it takes to collect the data, and an
       evaluation of its value as a management tool.

*Signed* (Center Commander)

Copy to:
All Departments, Administrative Command
Ordnance Div., R3OU, Recruit Training Command
Engineering Schools Group, Service School Command
Clerical Schools Group, Service School Command

Figure 4
NAVAL SHORE STATION "C*
COMMANDER'S MEMORANDUM, DATED 28 MARCH 1953
to the installation of work measurement and those which were not so easily adaptable be included. Before making the selection of groups to participate, a meeting was held with the commanding officers of the Service School Command, Recruit Training Command, and Administrative Command to explain the program and get suggestions as to which departments should participate. It was decided that it would be advisable for every department of the Administrative Command and for selected groups from the other two commands to participate. A general orientation meeting was held with the department heads of the Administrative Command to explain the program and get a decision on which specific personnel would be involved in the experimental work. In all, twenty-three groups were selected to participate in the experimental introduction of work measurement at Naval Shore Station "C." These groups are listed below and are also shown in Figure 5 which presents an organization chart of the three commands at Naval Shore Station "C." Figure 5 shows the organization of the entire station and how the twenty-three experimental groups fit into the total picture.

**Participating Groups**

**Groups in Service School Commands:**

1. Administrative Personnel
2. Personnelmen "C" School
3. Yeoman "B" School

---

20 The Navy Exchange Department in the Administrative Command was omitted because it is a self-supporting activity using non-appropriated funds.
(4) Yeoman "A" School
(5) Advanced Metalwork "C" School
(6) Metalsmiths "A" School
(7) Machinery Repairmen "A" School
(8) Pipefitters "A" School
(9) Air Conditioning Refrigeration "C" School

Groups in Recruit Training Commands:

(10) Receiving and Outfitting Division
(11) Ordnance Division

Groups in Administrative Commands:

(12) Security Department
(13) Executive Department
(14) Center Commanders Office
(15) Personnel Department
(16) Special Services Department
(17) Communications Department
(18) Medical Department
(19) Dental Department
(20) Chaplains Department
(21) Legal Department
(22) Supply and Fiscal Department
(23) Public Works Department
Center Commander

Assistant Center Commander
Commanding Officer, Administrative Command

Administrative Command
- Chaplains Department
- Communications Department
- Dental Department
- Executive Department
- Legal and Discipline Department
- Medical Department
- Personnel Department
- Public Works Department
- Special Services Department
- Supply and Fiscal Department

Recruit Training Command
- Operations Department
  - Receiving and Outfitting Division
    - Training Department
      - Ordnance Division

Service Schools Command
- Administrative Personnel
  - Engineering Schools Group
  - Clerical Schools Group
    - Machinery Repairmen "A" School
    - Metalsmiths "A" School
    - Pipefitters "A" School
    - Personnelmen "C" School
    - Advanced Metalwork "C" School
    - Air Conditioning and Refrigeration "C" School

Figure 5
Naval Shore Station "C"
Organization Chart
First Two Group Meetings

Since the time factor made it impossible to have an individual meeting with each of the twenty-three groups, it was necessary to combine some of the groups for the group meetings. All of the experimental groups in the Service School Command met together. A total of eighteen people were in this group. The Receiving and Outfitting Division of the Recruit Training Command met as a group as did the Ordnance Division of this command. For purposes of the group meetings which were held, the departments in the Administrative Command were grouped as follows:

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Administrative Department</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Security Department</td>
</tr>
<tr>
<td></td>
<td>Center Commander's Office</td>
</tr>
<tr>
<td>Group II</td>
<td>Personnel Department</td>
</tr>
<tr>
<td></td>
<td>Communications Department</td>
</tr>
<tr>
<td></td>
<td>Special Services Department</td>
</tr>
<tr>
<td>Group III</td>
<td>Dental Department</td>
</tr>
<tr>
<td></td>
<td>Medical Department</td>
</tr>
<tr>
<td></td>
<td>Legal and Discipline Depart</td>
</tr>
<tr>
<td></td>
<td>Chaplains Department</td>
</tr>
<tr>
<td>Group IV</td>
<td>Supply and Fiscal Department</td>
</tr>
<tr>
<td></td>
<td>Public Works Department</td>
</tr>
</tbody>
</table>

The number of people in each group varied from fifteen to twenty.

In the first group meeting with these people, a brief explanation was given of the background and purpose of the experimental work. Before anything was said about the subject of work measurement itself, the people in the groups were asked to complete a revised "Work Measurement Information Form." This form was devised to check the present understanding and attitude of the people toward work measurement.
copy of the revised "Work Measurement Information Form" is contained in Appendix F. It was explained to the participants that the purpose of the "Work Measurement Information Form" was not primarily to test the participants themselves, but to help in finding and evaluating an effective means of introducing work measurement to naval personnel at the local command level. The participants were told that they would have an opportunity to complete the "Work Measurement Information Form" again at a later time, and they were asked to put their names on the forms so that the "before" and "after" tests could be accurately matched.

The first group meetings lasted from one to one and one-half hours each. After the introductory remarks and administering of the "Work Measurement Information Form" were completed, a lecture was given on the meaning and basic concepts of work measurement. At the end of the first meeting, the people were given copies of a revised Work Measurement Manual which had been written for naval personnel at the local command level.

A second group meeting was held with the same groups on the day following the first meeting. At this second meeting, the steps for setting up a local work measurement system were introduced and discussed. Taking one of the departments or divisions present as an example, the steps for setting up a work measurement system were carried through and discussed. The people present were encouraged to adapt the steps to setting up a work measurement system in their respective departments. Near the end of these second group meetings,
a "Small Group Meeting Evaluation Form" was given to the participants in which they were asked to evaluate the group meetings which had been held and indicate their reaction to the worth of the small group meeting as a means for work measurement indoctrination and training. This "Small Group Meeting Evaluation Form" is presented in Appendix G. The responses received are reported later in this chapter under the heading "Results Observed During The Introduction Period."

**Individual Work With The People In The Experimental Groups**

In the nine days following the second group meetings, individual conferences were held with the officers whose job it was to set up work measurement systems for their departments and divisions. In these conferences, the officers were given help in selecting appropriate work units and in setting up practical means of gathering and reporting the work measurement data. Many questions were raised in regard to points which were not made clear in the presentations in the group meetings. Many objections were raised to the application of work measurement to particular departments and divisions. These objections and questions provided a good opportunity for observing many reactions to work measurement. In each case, a diligent attempt was made to find out what the important factors were which influenced the degree of understanding or acceptance found.

With twenty-three groups to cover, the amount of individual help it was possible to give the participants was considerably less than the help given to the people involved in the experimental introduction of work measurement at Naval Shore Station "A." With
some of the divisions, time did not allow for making a second visit to see how things were progressing. It was found, however, that some officers would catch the idea of work measurement very quickly and could, without much help, adapt the basic concepts to their own situations. Others needed a lot of help and explanation in getting a system into operation.

Third Group Meetings

About one week after the first group meetings, and after working individually with the key people, a third group meeting was held with each of the groups which had met two times previously. The purpose of this third meeting was to re-administer the "Work Measurement Information Form," and to discuss problems and progress thus far in getting the work measurement systems installed. In these meetings, additional matters of attitude and acceptance were observed. Some of the people expressed freely their ideas and feelings about how to get personnel to understand, accept, and use work measurement.

Field Logs

In the entire course of the experimental introduction of work measurement, daily logs were kept to record all kinds of observations. Emphasis was placed on documenting problems or difficulties encountered and dominant attitudes of participating personnel. These logs provided a systematic way of recording observations and served as a valuable supplement to the evaluative materials filled out by the participating personnel.
B. RESULTS OBSERVED DURING
THE INTRODUCTION PERIOD

This section deals with actual results which were observed during the introduction period of the experimental work. This period was between March 25 and April 15, 1955. Keeping in mind that the focus of this experimental work was to get further evidence concerning the factors which influence understanding, acceptance, and use of work measurement at the local command level, the results reported here are organized into the following major headings: (1) results pertaining to the understanding of work measurement; (2) results pertaining to the acceptance of work measurement; and (3) results pertaining to attitude toward best approach in getting acceptance and use of work measurement. The results reported here came from several sources, namely, the evaluation forms used; field logs kept; on-the-spot observations of the installation of local work measurement systems; and personal interviews with the people involved in setting up their own work measurement systems.

Results Pertaining To The Understanding Of Work Measurement

(1) Results from the factual questions on the "Work Measurement Information Form"

The revised "Work Measurement Information Form," as shown in Appendix F, was administered to ninety people "before" and again "after" the people had been exposed to the group meetings and the individual help which was given. The first twelve questions were designed to
test knowledge of work measurement facts, and the last three questions tried to get at feelings and attitudes about work measurement, management improvement, and how best to bring these things into being. Table XII presents a summary of the results of the first twelve questions of the "Work Measurement Information Form."

It can be seen from Table XII that "before" anything was said about work measurement, ninety people achieved a total of 822 correct answers on the factual section of the "Work Measurement Information Form." (Questions one through twelve.) After two group meetings and after working individually with these people, they were able to get a total of 1525 correct answers. The average percentage of total possible correct answers was 45.7 per cent "before" and 75.5 per cent "after" the group meetings and individual consultation. This shows a considerable gain in knowledge of the facts of work measurement.

(2) Ability to Select Work Units

One of the basic concepts in the field of work measurement is the concept of the work unit. A work unit is a tangible and countable expression of work turned out. For example, a work unit for a barracks might be the "people berthed." A work unit for a Navy galley might be the "rations fed." One tangible indication of a person's understanding of work measurement is his ability to select acceptable work units which represent the work of his department. Question twelve on the "Work Measurement Information Form" gave the participants a chance to list work units for their departments. The results of how many work units the people were able to write "before" and
Table XII

RESULTS OF THE FACTUAL QUESTIONS ON THE WORK MEASUREMENT INFORMATION FORM ADMINISTERED AT NAVAL SHORE STATION "C"

<table>
<thead>
<tr>
<th>Groups of People</th>
<th>Number of People</th>
<th>Number of correct answers Before</th>
<th>Per cent of total possible correct answers Before</th>
<th>Number of correct answers After</th>
<th>Per cent of total possible correct answers After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>1</td>
<td>15</td>
<td>75</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>Group 2</td>
<td>2</td>
<td>18</td>
<td>45</td>
<td>36</td>
<td>90</td>
</tr>
<tr>
<td>Group 3</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>33</td>
<td>83</td>
</tr>
<tr>
<td>Group 4</td>
<td>2</td>
<td>19</td>
<td>48</td>
<td>54</td>
<td>85</td>
</tr>
<tr>
<td>Group 5</td>
<td>2</td>
<td>15</td>
<td>38</td>
<td>52</td>
<td>80</td>
</tr>
<tr>
<td>Group 6</td>
<td>2</td>
<td>21</td>
<td>53</td>
<td>29</td>
<td>73</td>
</tr>
<tr>
<td>Group 7</td>
<td>3</td>
<td>20</td>
<td>35</td>
<td>49</td>
<td>82</td>
</tr>
<tr>
<td>Group 8</td>
<td>2</td>
<td>16</td>
<td>40</td>
<td>31</td>
<td>78</td>
</tr>
<tr>
<td>Group 9</td>
<td>2</td>
<td>18</td>
<td>45</td>
<td>35</td>
<td>88</td>
</tr>
<tr>
<td>Group 10</td>
<td>9</td>
<td>78</td>
<td>43</td>
<td>81</td>
<td>45</td>
</tr>
<tr>
<td>Group 11</td>
<td>3</td>
<td>23</td>
<td>38</td>
<td>53</td>
<td>88</td>
</tr>
<tr>
<td>Group 12</td>
<td>5</td>
<td>32</td>
<td>32</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Group 13</td>
<td>10</td>
<td>74</td>
<td>37</td>
<td>112</td>
<td>56</td>
</tr>
<tr>
<td>Group 14</td>
<td>2</td>
<td>29</td>
<td>73</td>
<td>37</td>
<td>93</td>
</tr>
<tr>
<td>Group 15</td>
<td>11</td>
<td>114</td>
<td>48</td>
<td>168</td>
<td>76</td>
</tr>
<tr>
<td>Group 16</td>
<td>3</td>
<td>14</td>
<td>23</td>
<td>50</td>
<td>85</td>
</tr>
<tr>
<td>Group 17</td>
<td>2</td>
<td>21</td>
<td>53</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>Group 18</td>
<td>2</td>
<td>28</td>
<td>59</td>
<td>36</td>
<td>90</td>
</tr>
<tr>
<td>Group 19</td>
<td>3</td>
<td>20</td>
<td>34</td>
<td>55</td>
<td>91</td>
</tr>
<tr>
<td>Group 20</td>
<td>4</td>
<td>37</td>
<td>46</td>
<td>65</td>
<td>81</td>
</tr>
<tr>
<td>Group 21</td>
<td>1</td>
<td>12</td>
<td>60</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>Group 22</td>
<td>15</td>
<td>173</td>
<td>56</td>
<td>257</td>
<td>79</td>
</tr>
<tr>
<td>Group 23</td>
<td>2</td>
<td>21</td>
<td>53</td>
<td>26</td>
<td>55</td>
</tr>
</tbody>
</table>

TOTALS 90 822 1325

Average proportion of total possible correct answers:

"Before" = 45.7%
"After" = 73.5%
"after" the introduction period of the experimental introduction of work measurement are shown in Table XIII. A gain in understanding is shown by the fact that 34 per cent more work units were listed "after" than "before" the group meetings and individual work with the people. A complete list of the "before" and "after" enumeration of work units is given in Appendix H. By examining these work units carefully, one who is familiar with the operations of the various departments can see that those work units listed on the "after" test are of a higher quality in that they are more representative of the work accomplished.

(3) Results of the "Small Group Meeting Evaluation Form"

The small group meeting evaluations give additional evidence pertaining to what it takes to achieve understanding of work measurement among the people at the local command level. The "Small Group Meeting Evaluation Form" which was given to the people in the twenty-three participating groups is presented in Figure 6 and a summary of the responses to the items on the first page is recorded on the form in Figure 6.

"As an aid in getting the meaning of work measurement," approximately 49 per cent of the people said that the meetings were of some help. Thirty-six per cent indicated they were of more than average help, and 11 per cent thought they were of great help. Four per cent said the meetings were of no or little help in getting the meaning of work measurement.
On the basis of the group meetings, roughly 32 per cent of the people were willing to give work measurement a try but had reservations. Forty-six per cent were willing to give it a try, and 11 per cent were completely sold on trying it. Ten per cent were not at all sold or were undecided whether to give work measurement a try.

Table XIII

THE NUMBER OF WORK UNITS LISTED
AT NAVAL SHORE STATION "0" "BEFORE" AND "AFTER"
THE GROUP MEETINGS AND INDIVIDUAL CONSULTATIONS

<table>
<thead>
<tr>
<th>Command</th>
<th>Number of Work Units Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;Before&quot;</td>
</tr>
<tr>
<td>Recruit Training</td>
<td></td>
</tr>
<tr>
<td>Command</td>
<td>25</td>
</tr>
<tr>
<td>Service Schools</td>
<td></td>
</tr>
<tr>
<td>Command</td>
<td>39</td>
</tr>
<tr>
<td>Administrative</td>
<td></td>
</tr>
<tr>
<td>Command</td>
<td>150</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>214</strong></td>
</tr>
</tbody>
</table>

On the basis of their experience in the meetings, the people rated the worth of small group meetings as a means for work measurement indoctrination and training as follows: approximately 45 per cent said it helps, 33 per cent indicated it helps a lot, and 21 per cent thought it to be absolutely necessary. About 3 per cent noted that the small
SMALL GROUP MEETING EVALUATION FORM

Organisational Unit _______________________________________________________________________

Number in Group __________________________________________________________________________

A. Did the group meetings help you get the meaning of work measurement?

<table>
<thead>
<tr>
<th>Rating</th>
<th>Percentage</th>
<th>Number</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No help</td>
<td>2.2%</td>
<td>2</td>
<td>69</td>
</tr>
<tr>
<td>Little help</td>
<td>2.2%</td>
<td>2</td>
<td>69</td>
</tr>
<tr>
<td>Some help</td>
<td>48.9%</td>
<td>44</td>
<td>69</td>
</tr>
<tr>
<td>More than average help</td>
<td>35.6%</td>
<td>32</td>
<td>69</td>
</tr>
<tr>
<td>Great help</td>
<td>11.1%</td>
<td>10</td>
<td>69</td>
</tr>
</tbody>
</table>

N = 90

B. To what extent did these group meetings contribute to your willingness to give work measurement a try-out in your department or division?

On the basis of these meetings I am:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Percentage</th>
<th>Number</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all sold on trying it</td>
<td>6.8%</td>
<td>6</td>
<td>69</td>
</tr>
<tr>
<td>Undecided whether I should give it a try</td>
<td>4.5%</td>
<td>4</td>
<td>69</td>
</tr>
<tr>
<td>Willing to give it a try but have reservations</td>
<td>31.5%</td>
<td>28</td>
<td>69</td>
</tr>
<tr>
<td>Willing to try it</td>
<td>46.0%</td>
<td>41</td>
<td>69</td>
</tr>
<tr>
<td>Completely sold on trying it *</td>
<td>11.2%</td>
<td>10</td>
<td>69</td>
</tr>
</tbody>
</table>

N = 89

*C not answered on one form

C. On the basis of your experience in these meetings, rate the worth of "the small group meeting" as a means for work measurement indoctrination and training.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Percentage</th>
<th>Number</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worth nothing</td>
<td>2.3%</td>
<td>2</td>
<td>69</td>
</tr>
<tr>
<td>Helps very little</td>
<td>1.1%</td>
<td>1</td>
<td>69</td>
</tr>
<tr>
<td>It helps</td>
<td>42.7%</td>
<td>38</td>
<td>69</td>
</tr>
<tr>
<td>Helps a lot</td>
<td>32.5%</td>
<td>29</td>
<td>69</td>
</tr>
<tr>
<td>Absolutely necessary *</td>
<td>21.4%</td>
<td>19</td>
<td>69</td>
</tr>
</tbody>
</table>

N = 89

*Not answered on one form

Figure 6

Summary of Responses on the "Small Group Meeting Evaluation Form" Used at Naval Shore Station "C"
group meeting is worth nothing or helps very little in work measurement indoctrination and training.

These results conform generally to those obtained at Naval Shore Station "A." They are not strictly comparable in all categories due to the changed wording of the items, but the evaluations of group meetings as an aid in getting the meaning of work measurement and as a means for work measurement indoctrination are equally favorable.

The group meeting evaluations also included comments about what was wrong, what was liked, and suggestions for improving the group meetings. Table XIV summarizes the comments on what was wrong with the group meetings, while Table XV summarizes the comments on what was liked about the group meetings. Table XVI summarizes the suggestions the people made for improving the group meetings. In Tables XIV, XV, and XVI, only those comments which were mentioned two times or more are included. Appendix I contains a complete list of the respondents' comments and in the exact words they used. These comments give additional evidence to the value of the small group meeting in achieving understanding. The comments also support the point that work measurement training must be tied in with the specific situations existing in the various departments. Moreover, the comments show clearly that the subject of work measurement should not be covered too fast or become too complex at the beginning. A look at the great number of comments in Appendix I shows one thing more, namely, that some factor or group of factors in the total situation motivated the people to give forth freely with their comments and reactions.
### Table XIV

**SUMMARY OF EVALUATION OF GROUP MEETINGS AT NAVAL SHORE STATION "O" AS SHOWN BY ANSWERS TO THE QUESTION, "IN YOUR OPINION WHAT WAS WRONG WITH THE MEETING?"

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number of comments of this type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too general</td>
<td>11</td>
</tr>
<tr>
<td>The subject was covered too fast for most students to get any meaning</td>
<td>11</td>
</tr>
<tr>
<td>Difficult to get the maximum good out of the meeting without previous information</td>
<td>9</td>
</tr>
<tr>
<td>Over the heads of most of us</td>
<td>9</td>
</tr>
<tr>
<td>Not enough specific answers about the value and operation of work measurement</td>
<td>8</td>
</tr>
<tr>
<td>Too large and heterogeneous group</td>
<td>6</td>
</tr>
<tr>
<td>Too much material covered in meetings that was adequately covered in the manual</td>
<td>5</td>
</tr>
<tr>
<td>Lack of positive and forceful approach</td>
<td>4</td>
</tr>
<tr>
<td>The level of instruction was too low</td>
<td>4</td>
</tr>
<tr>
<td>Question applicability of work measurement to my job</td>
<td>4</td>
</tr>
<tr>
<td>Nothing wrong—well presented</td>
<td>3</td>
</tr>
<tr>
<td>Nothing except all departments could stand more instruction</td>
<td>2</td>
</tr>
<tr>
<td>Not enough time was used in explaining how to arrive at an acceptable work unit</td>
<td>2</td>
</tr>
<tr>
<td>Too much stress on performance rate</td>
<td>2</td>
</tr>
</tbody>
</table>
### Table XV

**SUMMARY OF EVALUATION OF GROUP MEETINGS AT NAVAL SHORE STATION "G" AS SHOWN BY ANSWERS TO THE QUESTION, "WHAT DID YOU LIKE ABOUT THE MEETINGS?"

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number of comments of this type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of leader (e.g. enthusiasm, competence, etc.)</td>
<td>22</td>
</tr>
<tr>
<td>Helpful means of &quot;getting the work across&quot;</td>
<td>14</td>
</tr>
<tr>
<td>Participation: discussion, chance for questions</td>
<td>14</td>
</tr>
<tr>
<td>Informality of meetings</td>
<td>13</td>
</tr>
<tr>
<td>Arousing interest; stimulating thought</td>
<td>8</td>
</tr>
<tr>
<td>Length of meetings (Note: the meetings averaged from 60 to 90 minutes)</td>
<td>6</td>
</tr>
<tr>
<td>Material clear and understandable</td>
<td>5</td>
</tr>
<tr>
<td>Concern for improving Navy management-wise</td>
<td>5</td>
</tr>
<tr>
<td>Clarification (of work measurement)</td>
<td>3</td>
</tr>
<tr>
<td>The use of a department to serve as an example in the discussion and selection of work units</td>
<td>2</td>
</tr>
<tr>
<td>Review of &quot;areas of organization&quot; very helpful</td>
<td>2</td>
</tr>
<tr>
<td>Secured their cooperation to give work measurement a try</td>
<td>2</td>
</tr>
</tbody>
</table>
Table XVI

SUMMARY OF EVALUATION OF GROUP MEETINGS AT NAVAL SHORE STATION "O" AS SHOWN BY ANSWERS TO THE QUESTION, "WHAT SUGGESTIONS DO YOU HAVE FOR IMPROVING THESE GROUP MEETINGS?"

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number of comments of this type</th>
</tr>
</thead>
<tbody>
<tr>
<td>More time on subjects covered; longer meetings or more meetings</td>
<td>7</td>
</tr>
<tr>
<td>Presentation of more concrete examples and detailed information</td>
<td>7</td>
</tr>
<tr>
<td>Have smaller groups</td>
<td>7</td>
</tr>
<tr>
<td>Spend more time working on actual problems</td>
<td>4</td>
</tr>
<tr>
<td>Arrange for smaller groups with comparable activities and problems</td>
<td>7</td>
</tr>
<tr>
<td>Spend more time in planning and presenting subject, especially basic information</td>
<td>4</td>
</tr>
<tr>
<td>Use a specific and relevant example to illustrate work measurement data</td>
<td>2</td>
</tr>
<tr>
<td>Illustrations used should vary from those used in the manual in order to stimulate discussion</td>
<td>2</td>
</tr>
<tr>
<td>Prepare a definite agenda or make material available before meetings</td>
<td>2</td>
</tr>
<tr>
<td>Have someone who thoroughly understands work measurement conduct the meetings</td>
<td>2</td>
</tr>
<tr>
<td>Be more specific in explaining our part in preparing the reports</td>
<td>2</td>
</tr>
<tr>
<td>A closer association or tie-in between performance data and quality should be devised, plotting curves of each on same graph to depict how one influences the other</td>
<td>2</td>
</tr>
</tbody>
</table>
Table XVI (Continued)
SUMMARY OF EVALUATION OF GROUP MEETINGS AT NAVAL SHORE STATION "C"
AS SHOWN BY ANSWERS TO THE QUESTION,
"WHAT SUGGESTIONS DO YOU HAVE FOR IMPROVING THESE GROUP MEETINGS?"

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number of comments of this type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work in the field first to sell the idea. This would give the motivation necessary for a learning situation</td>
<td>2</td>
</tr>
<tr>
<td>A person knowing both the principal topic and a good understanding of military operation should head the discussion</td>
<td>2</td>
</tr>
</tbody>
</table>

Results Pertaining To The Acceptance Of Work Measurement

(1) Responses to Question 13 on the "Work Measurement Information Form"

One method used to get a measure of acceptance of the use of work measurement was to ask the people to indicate their general feeling toward work measurement as it applied to their department or organizational unit. This question was included in the "Work Measurement Information Form," so that the people had a chance to express their attitude toward work measurement at the very beginning of the introduction period and again after the group meetings and individual consultation. Table XVII summarizes the responses received.

As Table XVII shows, changes in attitude toward work measurement are reflected in several categories. Before the group meetings and
Table XVII

SUMMARY OF RESPONDENTS FEELINGS TOWARD WORK MEASUREMENT
AS IT APPLIES TO THEIR DEPARTMENTS
(NAVAL SHORE STATION "O")

<table>
<thead>
<tr>
<th>Response</th>
<th>Number</th>
<th>&quot;Before&quot;</th>
<th>&quot;After&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not consider work measurement essential in my department's operation</td>
<td></td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Undecided as to the merits of using work measurement in my department</td>
<td></td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Tend to believe in using work measurement in my department, but have some important reservations</td>
<td></td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>Wholeheartedly believe in using work measurement in my department</td>
<td></td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Feel that work measurement is an absolute essential for good management</td>
<td></td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Do not know enough about work measurement to have very much of an attitude about its use in my department</td>
<td>54</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

individual consultation, 60 per cent of the people indicated that they "did not know enough about work measurement to have very much of an attitude about its use in my department." Yet, only 2 per cent indicated this feeling after the group meetings and individual consultation. On the "before" test no one marked "do not consider work measurement essential in my department's operation." In the "after" test
18 per cent indicated this feeling. In the category, "undecided as to the merits of using work measurement in my department," the per cent of people claiming this feeling changed from 7 on the "before" test to 22 on the "after" test. In the third category, "tend to believe in work measurement in my department, but have some important reservations," the per cent of responses changed from 11 before to 37 after the group meetings and individual consultation.

In summary, before the group meetings and individual consultation, 60 per cent of the people indicated that they did not have much of an attitude about work measurement due to a lack of knowledge about the area. In the "after" test, all but 2 per cent stated a more definite opinion. In the "after" test, about 60 per cent expressed a feeling generally favorable to using work measurement and 40 per cent were undecided as to work measurement's merit or considered work measurement non-essential.

(2) Responses to Question 14 on the "Work Measurement Information Form"

The responses to Question 14 on the "Work Measurement Information Form" gave emphasis to the importance of a receptive attitude toward any new management technique. In this question, the respondents were asked to give their feeling about whether with a receptive attitude toward management techniques, naval officers could bring about a great deal of management improvement on a relatively unrefined, common-sense basis. Table XVIII summarizes the responses to this question. It can be seen from the table that on both the "before" and the "after" test, about 85 per cent of the people agreed or strongly
<table>
<thead>
<tr>
<th>Reaction</th>
<th>Number &quot;Before&quot;</th>
<th>Number &quot;After&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Uncertain</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Agree</td>
<td>60</td>
<td>63</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>15</td>
<td>13</td>
</tr>
</tbody>
</table>

agreed that with an understanding and receptive point of view toward work measurement a great deal of management improvement can occur on a common sense basis. The rest of the people were uncertain, disagreed, or strongly disagreed with the idea.

(5) Observations Recorded In The Field Logs

In the introduction period of the experimental introduction of
work measurement at Naval Shore Station "C," there were some consistent observations made which pertained to the things which influence acceptance. One of the most consistent factors encountered was a fear that information coming from the departments and divisions would be improperly used by higher administrative echelons and that decisions would be made on the basis of incomplete information. In expressing this fear of what the higher echelons would do with the information provided, the people were able to point to specific cases where in their past experience information had been acted upon hastily and to the detriment of the department providing the information. This anxiety about what use would be made of the work measurement data was expressed in a variety of ways; the log entries reproduced below are typical reactions.

(a) People apprehensive about what use top officers will make of first reports.

(b) Feeling that first reports will be taken as representative of long time operations instead of just a beginning point.

(c) Feeling that local reports eventually will be used at Bureau level and Navy-wide to compare operating efficiency of non-comparable groups at different shore stations.

(d) Conflict as to what the top man is thinking.

In the introduction period, there were some other observations from the field logs pertaining to factors of acceptance. These additional observations are listed below:

(a) Many people feel that they cannot do anything about getting more personnel if needed or reducing personnel if they are not needed.

(b) Many people may understand need for accountability, but shy away from additional reports.
(c) Most people feel that they have been surveyed to death.
(d) Most people are reluctant to set standards on themselves.

Results Pertaining to Feeling About the Most Effective Approach in Getting Understanding, Acceptance, and Use of Work Measurement

One of the results obtained during the introduction period of the experimental introduction of work measurement at Naval Shore Station "C" was a measure of attitude toward the effectiveness of five different methods of work measurement indoctrination. Question 15 on the "Work Measurement Information Form" was devised to get a measure of this attitude. Table XIX summarizes the results received.

The five methods listed in Table XIX are arranged in order of effectiveness, with the first method listed being the most effective according to the responses received. The methods were ranked according to the total score for each method. The total score was obtained for each method by multiplying each scale value of one to five by the number of responses for each scale value, and then totaling the products. For example, in the method which ranked first, the total score of fifty-seven was obtained by taking the sum of thirty-two times one, six times two, one times three, zero times four, and two times five. Thus the methods receiving the lowest total score values are the most effective. It is worth making a special note here that the manual-directive method was reacted to as the least effective means of achieving understanding, acceptance, and use of work measurement.

It should be mentioned that the wording of Question 15 in the "Work Measurement Information Form" apparently caused considerable
Table XIX

SUMMARY OF REACTIONS OF PERSONNEL AT NAVAL SHIP REPAIR STATION "C" TOWARD THE EFFECTIVENESS OF FIVE DIFFERENT METHODS OF ACHIEVING UNDERSTANDING, ACCEPTANCE, AND USE OF WORK MEASUREMENT

<table>
<thead>
<tr>
<th>METHOD</th>
<th>Number of Responses &quot;Before&quot;</th>
<th>Number of Responses &quot;After&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scale Number*</td>
<td>Score</td>
</tr>
<tr>
<td>Work Measurement manual used in connection with small group meetings,</td>
<td>32 6 1 0 2</td>
<td>57</td>
</tr>
<tr>
<td>staff assistance in &quot;helping the officer to help himself,&quot; and resultant individual participation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Measurement manual used in connection with small group meetings</td>
<td>6 32 3 0 0</td>
<td>79</td>
</tr>
<tr>
<td>and resultant individual participation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Measurement manual used in connection with normal course.</td>
<td>1 2 21 13 4</td>
<td>140</td>
</tr>
<tr>
<td>Work Measurement manual used in connection with large formal conference.</td>
<td>0 0 10 21 10</td>
<td>164</td>
</tr>
<tr>
<td>Work Measurement manual alone, promulgated by a strong directive from</td>
<td>2 1 6 7 25</td>
<td>175</td>
</tr>
<tr>
<td>higher authority.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Number 1 indicates the most effective method, and Number 5 indicates the least effective method.
difficulty, since only forty-one of the ninety respondents used the full scale in answering the question.

C. PROCEDURE DURING THE FOLLOW-UP PERIOD

A follow-up visit was made to Naval Shore Station "G" during the last week in May, 1953. The purposes of this visit were: (1) to observe what had been happening to the work measurement systems which were a little more than one month old; (2) to get at the problems which the people were encountering in setting up their work measurement systems; (3) to get additional feelings and attitudes toward work measurement and the reasons behind these feelings; (4) to look for any specific uses the people had been able to make of their work measurement systems in a little over a month's time; and (5) to find out how the people felt about voluntarily continuing work measurement for their own use. The results observed during this follow-up period are reported in the next section of this chapter. The method used in the follow-up period consisted of personal interviews with participating personnel and analysis of the work measurement reports which had been sent to the Center Commander.

D. RESULTS OBSERVED DURING THE FOLLOW-UP PERIOD

This section reports what happened to the work measurement systems which were installed and to the people involved in them after outside help was withdrawn and the people were left to shift for themselves. In looking at the results observed, it should be remembered that the
work measurement systems were just getting into operation around the middle of April and that the follow-up observation was done during the last week of the following month. The results reported here are organized into the following headings: (1) results pertaining to the understanding of work measurement; (2) results pertaining to the acceptance of work measurement; and (3) results pertaining to the use of work measurement.

Results Pertaining to the Understanding of Work Measurement

In the follow-up interviews with the people at Naval Shore Station "C," it soon became apparent that after a little more than a month's time many of the people were still involved in the mechanics of getting their work measurement systems set up. This led to the realization that people cannot be taken too far too fast in work measurement indoctrination. It takes time just to get the mechanics of the system worked out. A common reaction received was that understanding really comes from working with the system for a period of time. In this connection, it was mentioned repeatedly by the participating personnel that a manual alone will not do the job of work measurement indoctrination.

One tangible result of the experimental introduction of work measurement at Naval Shore Station "C" was the work measurement reports which were submitted to the Center Commander. These reports contained actual operating data on the manhours expended, work units completed, and performance rates for each subfunction of the various divisions and departments. While there was variation in the quality and completeness of these reports, the fact that every group was able to present actual
work measurement data is a positive indication that the people in the twenty-three experimental groups had some understanding of work measurement. Appendix J contains examples of the work measurement reports submitted.

Results Pertaining to the Acceptance of Work Measurement

(1) Acceptance Affected by Breadth of Vision Concerning Over-all Navy management and personnel problems

In talking with the people who were involved in setting up work measurement systems and in observing their reactions, it became apparent that one of the factors affecting acceptance was the degree to which the individual person was able to see beyond his own department or division. The people who were self-centered in their own divisions had difficulty seeing uses for work measurement and were reluctant to accept it. On the other hand, it appeared that those officers who had some appreciation of the problems of higher authority and of the Navy as a whole, tended to accept work measurement readily and were quicker to see uses for it.

(2) Acceptance Affected by Fear of Higher Authority's Use of the Facts

The comments and reactions obtained during the follow-up period brought out the point that people were not fully accepting work measurement because they were afraid and anxious about what action higher authority would take on the basis of the work measurement findings. Many of the officers were able to relate previous experiences where
information had been misused by higher authority, where improper action
had been taken on incomplete information, or where no action had been
taken when action was called for. Some of this anxiety apparently was
due to experiences naval officers had previously in being called upon
to carry out orders without adequate notice and calling for personnel
time demands beyond what was reasonable. As a result, officers appeared
to feel more secure if they had more personnel on hand than needed for
normal operations. With a certain amount of "padding" then, they were
ready to handle emergency situations without so much chance of receiv­
ing a reprimand from higher authority for not being able to "deliver"
as ordered.

One officer expressed this lack of confidence in what use higher
authority would make of the information provided in the work measure­
ment reports by saying, "It's a good tool for us, so long as we are
going to make the decisions." In referring to the attitude of some
other officers toward the fear that snap decisions might be made on
the basis of work measurement facts alone and without consulting the
department heads, one officer said, "You can't blame them for feeling
that way, because they have been caught up on the same thing so many
times. They have been stuck with snap decisions based on figures a­
lone."

(5) Observations Recorded in Field Logs

During the follow-up visit to Naval Shore Station "O" there was an
opportunity to make observations and get reactions concerning the accept-
These observations, as recorded in the field logs, are presented below as additional evidence of some of the factors affecting acceptance.

(a) Acceptance seems to be fostered when the local people feel they have some flexibility in working out the details of their work measurement systems. Trying to force everyone into the same hard and fast pattern brings a great deal of resistance.

(b) Acceptance is influenced by an appreciation of how the work measurement system will affect the officer's own status. For example, if a work measurement report will help an effective officer communicate his effectiveness to his superior, then he finds a lot of acceptance in the work measurement system. If the officer feels the work measurement report will make him look poorly in the eyes of his superior, then he resists the system.

(c) The participation of the local people in helping set up work measurement systems is a factor affecting acceptance. For example, if the local people are in on the matter of selecting work units or setting standards, they are more apt to accept the system. If the work units and standards are dictated from the top down, a great deal of resistance prevails.

(d) Acceptance is influenced by the amount of backing and interest of the top echelon of command. A realization that the commanding officer considers the work measurement system important and that some follow-up action will be taken are positive influences for acceptance.

(e) It becomes more and more clear that a manual itself doesn't change attitudes.

(f) Before full acceptance is achieved, naval personnel need to have the experience of observing the uses of work measurement in successful operation.

(4) Voluntary Plans To Continue Work Measurement Beyond The Experimental Period

Probably the best indication of the acceptance and potential value of work measurement at Naval Shore Station "O" was the decision on
the part of the commanding officer, Service Schools Command and the Commanding Officer, Administrative Command to continue the work measurement systems for their own use after the experimental trial was terminated. This did not mean that these commanding officers were completely sold on work measurement or that all of their subordinate officers wanted to continue the work measurement systems. It did indicate an open mind on the subject and a willingness to give work measurement a fair trial, which is about all that could be expected after watching the systems for such a short period of time. Specific evidence of this willingness to give work measurement a fair trial is contained in the following statement from the Commanding Officer of one of the commands. This statement was dated June 1, 1955, and went to all the department heads of the command.

The results obtained to date on the work measurement program, recently introduced by the Ohio State University, gives an indication of the usefulness of such a system. However, it is considered that the merit or shortcomings of the program can only be realized after a conscientious trial for an extended period of time. In order to give proper consideration to the worth of work measurement, departments are directed to continue developing the system until further notice.

It is not possible to give a conclusive answer as to why the third command at Naval Shore Station "C"—the Recruit Training Command—did not see "it to continue its work measurement program beyond the experimental period. Probably the best clue is given in the organization chart in Figure 5, where it can be seen that only two groups from the Recruit Training Command were involved in the experimental introduction of work measurement. This meant, of course, that relatively few
people were involved and that there was less chance for any enthusiasm for work measurement to reach the ears of the top officers.

Results Pertaining to the Use of Work Measurement

In the follow-up visit at Naval Shore Station "C" a check was made of specific uses which the participating personnel had found for their work measurement systems. Even in a little more than a month's time, some uses had already been found. These uses are presented below in the form of specific examples and statements of the value of work measurement. The examples and statements listed came from follow-up interviews and from statements made in the work measurement reports submitted to the Center Commander.

— It was observed in one of the service schools that the work measurement system made possible more effective assignment of the work load. In the Service Schools Command, the listing of subfunctions of in-service training along with such others as examination writing enabled the service schools to check automatically and constantly the time and output of these subfunctions.

— A division officer in one of the larger departments reported as follows:

    In anticipation of a decreased work load, the work measurement program instituted in this office has been directed toward shifting personnel to balance efficiency.

— A young officer in the Executive Department made this statement about his work measurement system:

    Already it has shown me things I did not know before.

— In a memorandum to the people in his section, one officer said:

    Personnel may expect to be transferred to different subfunctions and other sections partly on the basis of this work measurement. Criticism is invited toward the program, and constructive comments will prove valuable to a system not partic-
ularly adaptable to the military. However, it is a starting point, and reaching a standard is a refinement which should come with time.

--A department head wrote a part of his evaluation of a local work measurement system as follows:

For inexperienced supervisory personnel or people who are new to their jobs, work measurement data is very valuable to properly indoctrinate them into their work.

E. SUMMARY

This chapter has been concerned with experimental work which was conducted at a large naval shore station in order to get additional evidence concerning the factors which influence understanding, acceptance, and use of work measurement at the local command level. Twenty-three different groups were involved in the experimental work which was started on March 25, 1955, and terminated the last week in May, 1955. The approach used in the experimental introduction of work measurement was a refined version of the approach used at Naval Shore Station "A," involving the use of a work measurement manual, small group meetings, and individual work with the participating groups. The results pertaining to the understanding of work measurement showed a large gain in knowledge about work measurement facts, a gain in ability to write work units, and a work measurement report from each of the twenty-three groups. The results pertaining to the acceptance of work measurement showed an increase in willingness to give work measurement a try and revealed such factors which affected acceptance as the following: (a) breadth of vision concerning over-all Navy management problems; (b) fear of higher authority's use of work
measurement facts; (c) appreciation of how the work measurement sys-
tem will affect the officer's own status; (d) the amount of partici-
pation of the local people in helping set up work measurement systems;
(e) some flexibility in working out the details of the work measure-
ment system; and (f) the amount of backing and interest of the top
echelon of command. Probably the best indication of acceptance was
the decision on the part of the commanding officer, Service Schools
Command and the commanding officer, Administrative Command to con-
tinue the work measurement systems for their own use beyond the ex-
perimental period. Evidence pertaining to the use of work measure-
ment was presented in the specific examples cited and statements of
values seen in work measurement.

The sum of the results of the experimental work supports the
position that the small group meeting with resultant individual
participation is a relatively effective means of introducing work
measurement at the local command level, and that a manual and the
active backing of the top echelon of command are also essential.
Chapter V

SUMMARY AND CONCLUSIONS

A. RE-STATEMENT OF THE PROBLEM AND OBJECTIVES

The focus of this study had its origin in the feeling that if an administrator is to get those with whom he works to really accept and use a new concept such as work measurement, it is not enough that they have an understanding of the concept and be told to use it. They must go beyond understanding the concept, and accept it and believe in its value for them. This led to the questions: by what means do you get people to understand, accept and use a new concept such as work measurement? What are the factors which get in the way of understanding, acceptance, and use? What are the factors which expedite understanding, acceptance, and use of work measurement among naval personnel at the local command level? A review of the literature on related studies revealed little experimental evidence pertaining to the above questions. Moreover, interviews with naval officers and civilian specialists concerned with research activity in the Navy indicated a prevalent belief that all you have to do to put into operation a new concept such as work measurement is to tell the people what it is, how to do it, and that you want it done. The problem of this study then, centered around the existing uncertainty concerning what is an effective way of getting naval personnel to understand, accept, and use work measurement. From this problem, the following objectives emerged to structure the nature and scope of the study:
1. To evaluate the manual-directive approach in getting naval personnel to understand, accept, and use work measurement.

2. To search for an effective means of getting naval personnel at the local command level to understand, accept, and use work measurement.

3. To determine some of the factors which influence understanding, acceptance, and use of work measurement in the naval shore situation.

4. To draw implications for higher education from the findings in the naval shore situation.

B. METHODS AND PROCEDURES USED

Emphasis was placed on working in the field to gather evidence pertaining to the objectives of the study. In gathering this evidence, it was necessary to use the following methods and procedures:

1. Conduct personal interviews with naval personnel at three large naval shore stations.

2. Devise and administer a questionnaire to get a measure of understanding and attitude toward the Navy Shore Establishment Work Measurement System.

3. Devise and administer a "Work Measurement Information Form."

4. Devise and administer a revised "Work Measurement Information Form."

5. Devise and administer a "Group Meeting Evaluation Form."
6. Devise and administer a revised "Small Group Meeting Evaluation Form."

7. Write (with subsequent revisions) a "Work Measurement Manual" for use in the experimental introduction of work measurement at the local command level.

8. Hold small group meetings with naval personnel in order to introduce the subject of work measurement.

9. Work individually with naval personnel to help them get a work measurement system installed.

10. Keep field logs of observations.

11. Analyze work measurement reports submitted to the center commanders.

C. PRODUCTS OF THE RESEARCH

The products of this research may be organized into the following headings:

1. A questionnaire used to get a measure of understanding and attitude toward the Navy Shore Establishment Work Measurement System. (See Appendix B.)

2. Various evaluation forms and tests used in getting evidence on understanding and acceptance. (See Appendix C, Appendix D, Appendix F, and Appendix G.)

3. Additional evidences pertaining to the understanding, acceptance, and use of work measurement.
   (a) Examples of work measurement reports submitted at Naval
Shore Station "A," and Naval Shore Station "C." (See Appendix E and Appendix J.)

(b) List of "before" and "after" enumeration of work units at Naval Shore Station "C." (See Appendix H.)

(c) Complete list of group meeting evaluation comments at Naval Shore Station "C." (See Appendix I.)

(d) Observations and conclusions from the field logs.

D. CONCLUSIONS

The conclusions presented here were derived from the data gathered in the investigation and from the personal contacts in the field work at three large naval shore stations. In order to show how the conclusions tie in with the objectives of the study, they are organized under the following headings: (1) Conclusions With Respect To The Effectiveness Of The Manual-directive Approach As A Means For Getting Naval Personnel To Understand, Accept, And Use Work Measurement; (2) Conclusions With Respect To What Is An Effective Means Of Getting Naval Personnel To Understand, Accept, And Use Work Measurement; and (3) Conclusions With Respect To The Factors Which Influence Understanding, Acceptance, And Use Of Work Measurement Among Naval Personnel At The Local Command Level. Some general conclusions on evaluation are presented in a final paragraph.
Conclusions With Respect To The Effectiveness Of The Manual-directive Approach As A Means For Getting Naval Personnel To Understand, Accept, And Use Work Measurement

With respect to the effectiveness of the manual-directive approach as a means for getting naval personnel to understand, accept, and use work measurement, the following conclusions may be drawn:

1. Using a manual-directive approach, it is probable that naval personnel can understand the mechanics of a work measurement system, yet not believe in it and not accept it as an integral part of their own point of view.

2. A manual-directive approach does not allow naval personnel at the local command level to participate in developing or establishing any part of the work measurement system.

3. A manual-directive approach does not encourage local naval personnel to see the uses of work measurement as a management tool.

4. A manual-directive approach encourages artificial manipulation of the work measurement figures to the advantage of the local group.

5. A manual-directive approach fosters a hostile attitude toward a work measurement system introduced by this means.

6. The use of an approach consisting of a work measurement manual and a directive from higher authority is a relatively ineffective means of introducing work measurement to naval personnel at the local command level.
Conclusions With Respect To What Is An Effective Means Of Getting Naval Personnel To Understand, Accept, And Use Work Measurement

With respect to what is an effective means of getting naval personnel to understand, accept, and use work measurement, the following conclusions may be drawn:

1. There is no single device or means which by itself will accomplish an effective job of getting naval personnel to understand, accept, and use work measurement. A manual alone will not do it; pressure alone will not get the job done effectively.

2. A relatively effective means of getting naval personnel to understand, accept, and use work measurement is a self-applied, "help them help themselves" approach made up of the following parts:

   (a) a manual covering the basic facts of work measurement.
   
   (b) a directive from higher authority promulgating the work measurement system and establishing a plan for reports and follow-up.
   
   (c) small group meetings to explain the basic concepts of work measurement and to act as a means for getting the people involved in work measurement. The small group meeting aids both understanding and acceptance.
   
   (d) staff assistance in getting the work measurement system started and in coordinating the program.
   
   (e) appropriate action from top officers showing that the work measurement facts are being analyzed and used in
the activities of planning, organizing, and controlling the operations of the station.

Conclusions With Respect To The Factors Which Influence Understanding, Acceptance, And Use Of Work Measurement Among Naval Personnel At The Local Command Level

Much variation exists among naval personnel in regard to the degree of their understanding, acceptance, and use of work measurement. With respect to the factors which influence understanding, acceptance, and use of work measurement among naval personnel at the local command level, the following conclusions may be drawn:

1. Understanding, acceptance, and use are influenced by the degree to which there is evidence of the backing and support of the top echelons of command.

2. The degree to which a fear of accountability prevails is a factor which affects the understanding, acceptance, and use of work measurement.

3. The amount of time available to prove the system is a factor which affects the understanding, acceptance, and use of work measurement. Full understanding and acceptance do not come immediately—not until the people get involved in the system and see it in operation.

4. Understanding, acceptance, and use of work measurement are affected by the amount of anxiety over how the work measurement facts will be used by higher authority.
5. Understanding, acceptance, and use of work measurement are affected by the degree to which personnel feel that they have some control or "say-so" in getting men and materials if they need them.

6. Understanding, acceptance, and use of work measurement are affected by the individual's breadth of vision concerning over-all Navy management and personnel problems.

7. Understanding, acceptance, and use of work measurement are fostered when a person feels he has some flexibility in working out the details of his work measurement system.

8. Understanding, acceptance, and use of work measurement are influenced by the degree of appreciation a person has in regard to how the work measurement system will affect his own status and expenditure of effort on the job.

9. Understanding, acceptance, and use of work measurement are affected by the degree of participation on the part of the people at the division and departmental level in regard to the details of setting up the system.

10. Understanding, acceptance, and use of work measurement are affected by the degree to which there is a realization that the commanding officer considers the system important and that some follow-up action will be taken and recognition given.

11. Before full understanding, acceptance, and use of work measurement are achieved, personnel need the experience of seeing the uses of work measurement in successful operation.

12. Understanding, acceptance, and use of work measurement are influenced by the degree to which the data coming from the work
measurement system are tied in with and used in the operation and management of the entire naval shore station.

General Conclusions On Evaluation

With respect to the process of evaluation, the following general conclusions were drawn:

1. It is difficult to get an accurate, complete evaluation in a short period of time. An evaluation of the degree of acceptance, for example, has to be largely judgmental in the "short run." True acceptance will only be proved after a period of a year or more.

2. Some of the best evaluation of the effectiveness of given situations comes from personal observations on the scene and from being in touch with what is happening. Questionnaires, rating scales, and check-lists are helpful in providing additional evidence, but by themselves and without a great deal more research are of limited value in yielding data that are reliable and meaningful.

E. SUGGESTIONS FOR FUTURE RESEARCH

Looking back on this study, broad in scope as it was, there are suggested some additional research ideas which were beyond the limits of this investigation. These suggestions for future research include the following:

1. Results of this study should be checked by a repetition of the same experimental work at different types of naval shore stations. For example, the experimental work should be carried on at a U. S.
Navel Receiving Station and at a U. S. Naval Air Station. This would serve to check on any bias or conditions which might be peculiar to U. S. Naval Training Centers. With the Navy rotation system and general policy of versatility among officers, it is predicted that the results obtained at other types of naval shore stations would be quite comparable to those received at the Naval Training Centers.

2. Further follow-up research should be conducted at the naval shore stations used in this investigation, in order to check on what happened to the understanding, acceptance, and use of work measurement after a greater lapse of time. This would be desirable because of the fact that it is difficult to get an accurate evaluation in a short period of time. The real test of the understanding, acceptance, and use of work measurement at Naval Shore Station "A" and Naval Shore Station "C" would be in what happened to the work measurement systems a year or more after their initial installation.

3. Further research should be conducted in installing local command work measurement systems in order to bring about greater refinement of the methods and procedures used. For example, more experimental work should be done in holding small group meetings in order to get a more firm idea of what should be covered in the meetings and in what order. Or, it might be found that the order in which things happen is not important. More research is needed to determine the value of using a "before" and an "after" work measurement test as an aid to learning. The whole area of the use
of charts and other training aids needs to be tried out in refining the methods and procedures. In addition, there is a need for refining the method of getting top echelon officers interested in the possibilities of work measurement. This would involve methods for getting them interested initially as well as finding an effective way to get the top officers to follow up the work measurement reports and to take appropriate action showing their interest in and recognition for the work measurement systems.

4. An experimental investigation should be conducted on the effectiveness of the manual-directive approach, testing the effectiveness of more than one concept or subject which was introduced by means of a manual and a directive. This should be done in order to check the consistency of the results observed with respect to the understanding, acceptance, and use of the Navy Shore Establishment Work Measurement System, which was the subject used in this investigation to test the effectiveness of the manual-directive approach. The question arises as to what would happen when subjects other than work measurement were introduced by means of a manual and a directive. Would the attitudes and reactions be comparable to those found with respect to the Navy Shore Establishment Work Measurement System? Would there be important additional factors affecting the understanding, acceptance, and use of the subject in question?
Chapter VI

IMPLICATIONS OF THE NAVY STUDY FOR ADMINISTRATION
IN HIGHER EDUCATION

A. INTRODUCTION

The purpose of the writer in this chapter is to re-examine the findings of the studies at the naval shore stations in order to see how they may apply to administration in higher education. By logical inference, it is suggested that, with reasonable variations, the findings of the study in the naval shore situation may be applied to the area of administration in higher education.

What similarities are there in administration in the Navy situation and in college administration? In the first place, it was found in the Navy study that the administrator's big problem was getting work measurement and management improvement to "take" with naval personnel. Likewise, in the area of higher education the problem of the college administrator centers around how to get things to "take" with those in the college family. In colleges and universities, as in the Navy, the administrator is the activator and the coordinator of the thinking and actions of the staff.

Another similarity is the personnel turnover in the Navy and the turnover of college faculty personnel. This means similar problems of orientation and indoctrination of new people to help them understand and accept policies and decisions which have gone before them. Moreover, the older Navy hands and older faculty members are inclined to forget about the policies and decisions which they themselves supported in previous
years. In some cases it becomes apparent that naval personnel as well as faculty members supported a proposal without, at the time, really understanding it.

Although the situations found in the administration of Naval Shore Stations and in the administration of higher education are comparable, they differ in several ways. The major point of difference lies in the fact that the usual situation in higher education provides a greater degree of freedom or independence on the part of those in this field. As opposed to the Navy tradition of a more or less autocratic rule from the top down, there is a tradition in higher education for a great deal of freedom and independence on the part of faculty members. This is illustrated by the fact that in some colleges and universities the department heads are elected by the members of the faculty. When this is the case, the department head is usually not in a position to "crack down" or be authoritative with the faculty members of his department. Consequently, in the area of higher education decisions are likely to be made by faculty members to a greater extent than in the Navy by operative personnel. Thus it is no simple matter to manage a college faculty. As it has been expressed on numerous occasions, "a college professor is one who thinks otherwise."

What then are the implications of the navy findings for college administration? The remainder of the chapter will be devoted to a discussion of specific findings of the Navy study and how they apply to administration in the various phases of higher education.
B. IMPLICATIONS OF THE FINDING THAT THE USE OF AUTHORITY AND PRESSURE ALONE WAS NOT EFFECTIVE

It was found in the Navy study that although strong backing and support from the top echelon of command were important, the use of authority or pressure alone was not an effective means of getting naval personnel to understand, accept, and use work measurement. It was revealed clearly in the experimental work at the naval shore stations that when the pressure from the top gets too uncomfortable, there are ways subordinates have of relieving the pressure. It was found that the use of pressure alone tended to make naval personnel comply with instructions, but never really accept them or have an open mind about their potential value. As in the situation found in the Navy, so as the college administrator strives toward the coordination of the various phases of higher education, it would seem that in some of these areas faculty members are not going to be convinced for long by the use of authority alone. For example, the use of autocratic methods will not be effective very long in motivating faculty members to study and evaluate the curriculum of the institution. It may be implied from what was found in the Navy study that the use of pressure and autocratic methods would cause faculty members to comply with the minimum requirements, but never be motivated to really accept, believe in, and work in their responsibility for studying and evaluating the curriculum. The same implication may be drawn as the college administrator works to get faculty agreement and support as to the proper range and thoroughness of the curricular offerings and as he works to coordinate
the efforts of the faculty to make sure that the student has some
means of concentration in his advanced work. The college administrator
cannot expect acceptance if he tries to dictate to the faculty what
should be taught and how to teach it. For effectiveness then, the
college administrator cannot be "the dictator" in these matters.

In the student personnel phase of higher education, this finding
would mean that to be effective, the college administrator will not
make all the decisions. For example, he will not be autocratic in
regard to the methods used in enforcing student discipline. He will
not dictate as to the details of the freshman orientation program or
the menus to be served in the college dining halls. Some freedom and
flexibility needs to be provided for at the operative level in working
out the ways and means for reaching the established objectives.

In the instruction phase of higher education, there are impli-
cations of the Navy finding that the use of authority and pressure alone
was not effective. It is especially in the area of instruction in
higher education that there exists a strong feeling that faculty members
should have freedom and flexibility in organizing and teaching their
academic subjects. This means then, that the effective college adminis-
trator will recognize that there is no one right way to teach. He will
not insist on a lock-step pattern for all teachers to follow.

Lest the impression be given that there is no place in higher ed-
ucation administration for the use of authority and pressure from the
top, it is necessary to point out that in some matters the effective
college president or dean does act in what may seem to be an autocratic
manner. He can more effectively be "the dictator" in such matters as
the budget, savings in supplies and equipment, streamlining procedures, and restricting the number of filing cabinets which may be added each year. In addition, when there is interdepartmental feuding and bickering, the use of strong authority from the top is sometimes imperative.

C. IMPLICATIONS OF THE FINDING THAT THE DEGREE OF PARTICIPATION MAKES A DIFFERENCE

Here is a finding of the Navy study which is allied closely to the finding just presented, and which also has implications for the college administrator. In the experimental work conducted at the naval shore stations, it was evident that the understanding, acceptance, and use of work measurement were affected by the degree of participation on the part of the people at the division and departmental level in the details of setting up the work measurement systems. Among the naval personnel interviewed, one of the big factors accounting for the negative attitude toward the Navy Shore Establishment Work Measurement System was the fact that the people at the local level were not given a chance to participate in selecting the work units and in setting up the reporting system. On the other hand, in the experimental introduction of work measurement at Naval Shore Station "A" and at Naval Shore Station "C", one of the most frequent observations recorded in the field logs was to the effect that understanding and acceptance of work measurement were enhanced by the fact that the people at the local command level had a chance to participate in setting up the work measurement systems.
As in the situation found in the Navy, so in administration in higher education, it may be implied that getting faculty agreement and support is influenced by the degree of participation on the part of the faculty people in making plans and decisions. For example, there are implications here for the faculty personnel phase of higher education. In the matter of selecting new faculty members, it is known that a new faculty member's effectiveness is reduced if he does not have the acceptance and support of his associates on the faculty. A great deal of non-acceptance and ill-will can be avoided if faculty members (and especially those within the particular department affected) are given a chance to participate in the selection and approval of new faculty members. This does not mean that a faculty appointment should be held up just because the candidate does not meet with the approval of 100 per cent of the faculty. Neither does faculty participation in selecting new faculty members need to disrupt the normal chain of command which is from the department head, to the division head or dean, to the president, to the board of control. It may be implied also that some faculty participation in the promotion of faculty members makes a difference in acceptance. Here again the faculty participation need not disrupt the usual procedure of the dean or division head participating in the formal recommendation and the president making the final decision.

In administering the curriculum phase of higher education, there are implications for the Navy finding that the degree of participation makes a difference. If faculty members are given a part, for example,
in considering the proper range and thoroughness of the offerings in general education, they are more likely to cooperate in and support the general education curriculum which is adopted. Likewise, when faculty members are involved in the consideration of a plan of "majors" or "minors" to insure some means of concentration in a student's advanced work, the faculty members are more likely to cooperate in and support the adopted plan when they have been in on its consideration.

Another area where faculty acceptance and support are vitally important is in the faculty advisory system. Without faculty acceptance, the advisory system becomes a farce and the students and the institution stand to lose. The implications of the experimental work at the naval shore stations would indicate then, that if faculty members are not only to understand the faculty advisory system, but believe in it and use it effectively, they must have some part in setting it up. They must be in on the decisions which are made pertaining to the faculty advisory system. Here then is another illustration of the application to higher education of the finding in the Navy experimental work which showed that participation in making decisions definitely affected the quality of work done in carrying out the decisions.
D. IMPLICATIONS OF THE FINDING THAT AN IMPORTANT FACTOR AFFECTING UNDERSTANDING AND ACCEPTANCE WAS THE DEGREE TO WHICH AN INDIVIDUAL POSSESSED A BREADTH OF VISION CONCERNING OVER-ALL NAVY MANAGEMENT PROBLEMS

It was found in the Navy study that one of the factors affecting the understanding, acceptance, and use of work measurement was the degree to which an individual possessed a breadth of vision concerning over-all Navy management and Navy personnel problems. The individual whose vision was limited to his own department or division seemed to have greater difficulty accepting work measurement and seeing its potential value than the individual whose vision and awareness extended to the problems of the entire station and to the Navy as a whole. As in the situation found in the Navy, so in higher education it may be implied that getting things to "take" with faculty members is affected by the individual faculty person's breadth of vision concerning the over-all objectives and problems of the educational institution. Moreover, the faculty member's willingness and effectiveness in proposing new ideas and accepting and putting into operation the ideas of others is affected by his breadth of vision and awareness of the problems and issues confronting higher education in general.

Thus in the curriculum phase of higher education, the faculty member who has a concern for and an awareness of the problems and issues of higher education which go beyond his own department will probably contribute more effectively in such curricular matters as:
(1) tying in the curricular offering of the institution with the training a student has received in high school; (2) deciding how much of the four-year curricular offering should be geared for those who will go on to graduate school and how much of it should be geared for those students who will find a terminal point at the end of two or four years of college; and (3) arriving at a wise compromise in regard to how thinly the institution should spread its curricular offerings.

In addition, there are implications here which should help the college administrator in the selection of faculty members for committee work and for administrative responsibilities. For example, in selecting faculty members to help in making institutional studies, the effective college administrator will select those faculty members whose breadth of vision extends beyond their own departments. This means that in choosing key personnel for what in some institutions is called a planning committee or in others a committee on research and development, an attempt would be made to find those faculty members who had a breadth of vision concerning the over-all problems and objectives of the institution and an awareness of the problems and issues confronting higher education in general.

It becomes apparent at this point that the finding being discussed here cuts across all the phases of administration of higher education. For there is no area of higher education which could not be administered more effectively if the personnel involved had a better appreciation of the over-all objectives and problems and issues confronting higher education. If this be true, then the most
important implication of this finding for higher education is that
greater effort be made to make the college faculty aware of the
over-all problems and issues and objectives of higher education.
This means putting greater emphasis on a live faculty news letter or
faculty bulletin which would help faculty members become more aware
of the "big picture" in higher education. Special faculty meetings
might be held which were devoted to problems and issues in higher
education as they are tied in with the objectives and problems of
the local institution of higher learning. In addition, more empha-
sis might be placed on provision for and use of a faculty reading
shelf as a means for increasing the faculty members' breadth of
vision and awareness of the objectives and problems and issues in
higher education.

E. IMPLICATIONS OF THE FINDING THAT A
DETERMINING FACTOR AFFECTING ACCEPTANCE WAS
THE AMOUNT OF ANXIETY EXISTING AS TO HOW THE WORK
MEASUREMENT FACTS MIGHT BE USED BY HIGHER AUTHORITY

One of the strongest conclusions of the Navy study was that
the understanding, acceptance, and use of work measurement were
affected by the amount of existing anxiety over how the work measure-
ment facts might be used by higher authority. There was a widely
prevalent fear that information coming from the work measurement
systems would be used hastily and improperly by higher administra-
tive echelons and that decisions would be made on the basis of in-
complete information. As in this situation found in the Navy, so
in administration in higher education, it may be implied that getting faculty cooperation and getting things to “take” with faculty members will be influenced by the degree of confidence the faculty members have in their administrative officers and in their manner of using information which is given them.

This finding has a specific implication in the instruction phase of higher education. It is the practice in some colleges for instructors to turn in to the department head or academic dean course outlines or syllabi for the courses which they teach. A great deal of anxiety on the part of the instructional staff could be relieved if the instructional staff had more confidence in how the information turned in would be used. With less anxiety about turning in course outlines and syllabi, faculty members could spend less time worrying about the exact wording of the material turned in and devote more time to the job of being effective teachers. Certainly the potential value of course outlines and syllabi could be better realised and faculty acceptance become more prominent if less anxiety existed concerning how this material might be used by higher authority.

What has been said thus far about this finding suggests a related implication which cuts across all phases of higher education. This implication is that there is a need for more emphasis in higher education administration on good communications up and down and across the lines of authority. If, for example, there is anxiety among members of the instructional staff as to what use will be made of course syllabi which are turned in, this anxiety may be due to a lack of communications from the top down as to the use to
be made of course syllabi. A similar finding was revealed in the experimental work at the naval shore stations where it was found that undue anxiety existed among subordinates simply because of lack of communication from the top down.

Another area where there are implications of the finding that a determining factor in acceptance was the amount of anxiety existing as to how the work measurement facts might be used is the student personnel area of higher education. Here especially in the counseling activities is it important that there not be anxiety as to how the facts given the counselors will be used. The entire counseling system must be based on confidence that information given will not be publically revealed or mis-used by those in positions of responsibility and authority.

F. IMPLICATIONS OF FINDING THAT TIME WAS NECESSARY TO PROVE THE SYSTEM

In the experimental introduction of work measurement at Naval Shore Station "A" and at Naval Shore Station "C", it was found that before full understanding, acceptance, and use of work measurement were achieved, naval personnel needed to have the experience of seeing the uses of work measurement in successful operation. Time was necessary to prove the system. As in this situation found in the Navy study, so in administration in higher education it may be implied that the amount of time available to prove the worth of an institutional policy or decision is a factor which affects the understanding, acceptance, and use of the policy or decision. Full understanding
and acceptance do not usually come immediately.

For example, in the curricular phase of higher education, it should not be expected that complete understanding or acceptance of a new plan for general education will come immediately. Time will be necessary to prove (or disprove) the system. Likewise, time will be necessary for the general acceptance of a newly appointed college administrative officer or faculty member. It should not be expected that full acceptance will come immediately.

There are implications here for almost any new project or innovation in higher education. Some things like open stacks in the library, a new system of food service, honors courses, or a scaled-down athletic program have to be seen in successful operation before they are accepted. And this takes time. In this connection, the writer frequently recalls hearing reports that there was great difficulty experienced in getting students to enter and use the Student Union Buildings which were erected shortly after World War I. In these cases the students suspected that the college was trying to put something over on them by providing for them such facilities. A little time was necessary to prove the system.

G. IMPLICATIONS OF THE FINDING WHICH POINTED TO THE IMPORTANCE OF TOP ECHELON SUPPORT AND FOLLOW-UP ACTION

In the Navy study, the on-the-spot observations made and the follow-up interviews held brought out the fact that the understanding, acceptance, and use of work measurement were affected materially by the degree to which there was a realisation on the part of participating per-
sonnel that the commanding officer and the executive officer considered
the work measurement systems important and that some follow-up action
would be taken and recognition given on the basis of the work measure-
ment reports submitted. Repeatedly, it was observed that naval per-
sonnel watched closely the reactions of their superior officers to
take their cue as to how seriously to take the installation of their
work measurement systems. As in the Navy situation, so in administra-
tion in higher education, it may be implied that getting faculty mem-
ers to cooperate, and to propose new ideas, and to accept and put
into operation the ideas of others is affected by the degree to which
there is a realisation that the top administrative officers of the
college consider that these things are important and that some follow-
up action will be taken and recognition given for work done.

The finding has implications for the college administrator in
several phases of higher education. For example, there is little
motivation for the faculty member to put in hours of work on faculty
committees if the committee recommendations are ignored by the top
administrators of the college. A faculty committee on long-range
planning, for example, needs to know that its reports will get a
hearing and have a chance for some follow-up action by the top
administration of the college. Faculty members working on institu-
tional studies need to know that their efforts have the backing and
support of the college president. It is suggested then that the
college president needs to be alert to ways and situations in which
he can encourage the work of faculty members and give them appro-
priate recognition. This may mean writing personal notes of encourag-
ment and appreciation, giving public recognition to faculty committees
in faculty meetings, or recognizing the work of faculty members as individuals and as groups in the faculty newsletters or faculty bulletins.

Another area where top administrative support and recognition are important is in the faculty advising and counseling work with students. Here is an important faculty function which often misses the active support and recognition of top college administrators. In addition, there are implications here for giving more recognition to faculty members who do a good job of such things as record keeping, promptly turning in grades, the improvement of instruction, sponsoring student groups, and giving unselfishly to off-campus service and to community activities. The implication is that if college administrators value these kinds of activities on the part of faculty members, there must be more support and recognition given by top administrators to these activities.

H. IMPLICATIONS OF THE FINDING THAT THE SMALL GROUP MEETING WAS AN AID TO UNDERSTANDING AND ACCEPTANCE

In the experimental introduction of work measurement at the naval shore stations, considerable use was made of the small group meeting as a means of work measurement indoctrination and training. In the evaluations of the effectiveness of the small group meeting, it was clear that both understanding and acceptance were improved by use of the small group meetings. In the field logs it was recorded that there is value in letting people talk about work measurement in a group,
because those who catch on quickly are sometimes very helpful in explaining or clarifying a point for others in the group. It was further recorded in the field logs that a department head may have a very negative attitude toward work measurement, yet in the group meeting some of the subordinate officers may become quite interested in its possibilities. Thus it was recorded that the group meeting may be a means of keeping work measurement from dying at the department head level. As in the situation found in the Navy, so in the administration of higher education, it may be implied that there is a place for the use of the small group meeting as an aid to understanding and acceptance.

For example, group meetings might be held involving members of the staff of the business office and specified faculty members, such as department heads or faculty members within a single department. It may be implied from the Navy findings that such small group meetings would aid in faculty members' understanding and acceptance of the policies and practices of the business office. In return, the business office staff might well gain a new appreciation of how some of their policies and procedures affected the teaching members of the institution. In any case, it is probable that the small group meetings would result in a better understanding, acceptance, and working relationship among the individuals concerned.

Another implication of this finding for administration in higher education is that small group meetings could be used effectively in carrying on the orientation of new faculty members. Just as the small group meeting was found to be effective in work measurement
indoctrination and training in the Navy, so it may be implied that the small group meeting would be effective in introducing new faculty members to the mores and policies and basic requirements in their new jobs. Moreover, the small group meeting could be used in training junior faculty members for more competence and effectiveness in teaching.

There is still another area where this finding of the Navy study has implications for higher education. It is in the situation where the academic dean is trying to get his faculty to move forward, but is inhibited by a conservative department head who can only see the status quo situation. The small group meeting is the means whereby other faculty members may become enthusiastic about a proposal for change, and thus the group meeting may be the thing which keeps the proposal from dying at the department head level. Similarly, it may quickly bring to light the need for changes in the proposal.

I. SUMMARY

In this chapter the writer took the findings of the Navy study and pointed out their implications for administration in higher education. For each finding, illustrations were given from several areas of higher education. In summary of the findings and implications, it may be said that the effective college administrator is an activator and a coordinator of the ideas and actions of his staff. In almost every phase of higher education there are people on the college staff who know more about that phase of higher education and who are potentially more effective in it than the top administrative leader can
ever be. It then becomes the job of the effective college adminis-
trator to harness and utilise the brains and potential of the members
of the college family.
BIBLIOGRAPHY


APPENDICES
APPENDIX A

COMMAND MANAGEMENT CHECK-LIST (FORM I) PRE-TEST
In connection with evaluation and development of sound management techniques, which can be applied to the Naval Shore Establishment, the Ohio State Research Foundation plans to use the attached "check-off" list. This check-off list is developed to give an indication of naval officers' understanding and reaction to the management techniques and problem areas mentioned on the form.

Your help in aiding us in devising a valid and practical check-off list will be greatly appreciated. Also your suggestions on the clarity and ease of understanding the instructions will be of great aid.
Command Management Check-List
(Form I)

Introductory Statement

This command management check-list is being distributed by representatives of the Ohio State University Research Foundation to all officers of the Training Center. Your help in completing this check-list will be a definite contribution to the research effort on manpower utilization, which is rapidly becoming a matter of Navy-wide emphasis.

You can contribute most by giving your frank and honest reactions. The number stamped in the upper right-hand corner on this check-list will enable the Ohio State University representatives to follow up on any matters that may prove to be particularly helpful to the project. This information will not be given to any naval personnel, except in totals, thus making individual identification impossible.

PART I

Instructions: (1) Read each of the following statements. Place an "X" in front of each statement that suggests some concern to you.

(2) After completing the first step, look back over the statements you have checked, and circle the "X's" for those statements which are of most concern to you.

1. ___ Learning the policies of the station.
2. ___ Attitude of enlisted men toward civilian employees.
3. ___ Retaining highly qualified civilian employees.
4. ___ Getting a fair day's work from subordinates.
5. ___ Preparing budgets.
6. ___ Lack of authority.
7. ___ Preparing correspondence.
8. ___ Little you can do about unfavorable work measurement report.
9. ___ Conferences interfering with routine work.
10. ___ Work measurement does not disclose causes of poor manpower utilization.
11. ___ Local commands do not set Work Units.
12. ___ Non-productive time listed on Work Measurement report.
13. ___ Direct labor time is not separated from time of administrative personnel and other "over-head" workers.
14. ___ Work measurement does not improve "quality" of work done.
15. ___ Work measurement does not tell if work is necessary.
16. Spotting potential problems before they arise.
17. Personnel assignment.
18. Duplication of effort.
20. Controlling absenteeism.
21. Unfamiliarity with station organization.
22. A few people monopolize discussion.
23. Difference between shore and shipboard organization.
24. Need for work flow chart.
25. Cooperation between offices on a single project.
26. Supervising both civilian workers and military personnel on same project.
27. Personal gripes of subordinates.
28. Failure to consider if division head meeting is necessary.
29. Work Units used at your station not comparable to work done at other stations.
30. Composing letters for superiors.
31. Lack of understanding of the place of staff functions.
32. Advancement in rate or rank not closely enough related to job performance.
33. Skill required in job performance not closely enough related to rating.
34. Handling correspondence.
35. Routing of correspondence.
36. Keeping office records.
37. Keeping official records.
38. Overlooking the feelings and problems of those on lower levels.
39. Controlling uniformity of format of liberty cards.
40. Work measurement strictly carried out threatens emergency increases in allowances and complements.
41. Insecurity of personnel due to fear of work load changes.
42. Preparing work measurement reports.
43. Regulations keep officers from delegating duties.
44. Paper work.
45. Details of forms.
46. Time spent on Captain's Mast.
47. Public appearances.
49. Work measurement difficult to understand.
50. Work measurement reports take too much time to prepare.
51. Trying to satisfy more than one boss.
52. Supervising the work of WAVES.
10. _______ Maintaining high morale.

11. _______ Attracting highly qualified employees.

12. _______ Visualising the total organisation on the station.

13. _______ Pressure to use more civilians in face of civilian personnel ceilings.

14. _______ Logistic support for activities.

15. _______ Learning what is going on in some departments.

16. _______ Getting to know people in other departments.

17. _______ Fluctuations in work load.

18. _______ Liaison and coordination of efforts among departments and commands.

19. _______ Being understood by superiors.

20. _______ Being understood by subordinates.

21. _______ Understanding attitude of other military personnel.

22. _______ Conflict of higher directives from the different bureaus and administrative offices.

23. _______ Commanding officers understanding each other's problems.

24. _______ Building esprit de corps.

25. _______ Lack of motivation toward efficient manpower utilization.

26. _______ Delegating work.

27. _______ Making best use of personnel sent to you for duty.

28. _______ Extra duty on courts martial.

29. _______ Shortage of stenographical help.

30. _______ Uneven flow of work.

31. _______ Handling mail.

32. _______ Low motivation of civilian personnel.

33. _______ Answering congressional mail.

34. _______ Work measurement disregards importance of maintaining steady workforce, even if work load fluctuates.

35. _______ Placing newly received individuals in best billets.

36. _______ Placing man in billet below his capacity and intelligence.

37. _______ Using chiefs for seaman duties.

38. _______ Civilian administrators influencing unduly policy decisions.

39. _______ Chief yeoman running the place.

40. _______ Lack of flexibility in ordering type of person to fill a particular billet.

41. _______ Work measurement does not establish clear accountability.

42. _______ Must take personnel the "bureau" sends you.

43. _______ How standard rates are chosen.

44. _______ Using life for Ensign's duties.
Personnel-wise, having square pegs in round holes.
Less control over military personnel on shore stations than at sea.
C.O.'s disciplinary action limited by Uniform Code of Military Justice.
Making W.A.'s out of machinist's mates.
Constant interruptions from superior officers, often unintentional.
Lack of consideration on part of superior officers in demanding unimportant details to be done at once.
Mixing civilians and naval personnel.
N.C.P.I.'s
Replacement by WAVES.
Low motivation of enlisted personnel.
Extra duties required of uniformed personnel.
Personnel allowances not realistic.
Making organization charts.
How to keep in touch with what is "going on" in a large organization.
Motivating a large organization to fulfill the mission.
Explaining the mission to all hands.
Knowing the "Naval Correspondence Manual."
Knowing standard Navy procedures.
Importance of "on-the-job satisfactions" as a morale factor.
Developing standard procedures.
Instructions in directives not practicable.
Too much routine paper work.
Not enough meetings.
Too many conferences.
Forcing oneself to listen while others are talking in a department head meeting.
Finding it hard to follow the discussion in a department head meeting.
Forcing oneself to listen to the opinion of others.
Time spent in preparation for courts martial.
Problems due to directives over which you have no control.
Rotation of personnel between duty stations.
Rotation of personnel for training purposes.
Determining personnel requirements to meet emergency situations.
No incentive for better manpower utilization effort, on part of officers.
| 123 | Conferences too time-consuming. |
| 124 | Office politics. |
| 125 | Fear of reprimand, a hindrance to decision actions. |
| 126 | Time taken to serve on courts of military justice. |
| 127 | Rotation kills incentive to improve conditions. |
| 128 | Training personnel. |
| 129 | Determining causes of civilian personnel turnover. |
| 130 | Getting the work out active. |
| 131 | Changing outmoded procedures. |
| 132 | Distribution of work among sub-units and among individual employees. |
| 133 | Personnel turnover. |
| 134 | Relationships with civilian employees. |
| 135 | Unnecessary paper work. |
| 136 | Difficult to know what goes on in all offices of a large organization. |
| 137 | Charting exact organizational relationships. |
| 138 | Serving on Military Justice Boards. |
| 139 | Don't understand how consolidated performance rate is figured under present Navy-wide work measurement system. |
| 140 | WAVES. |
| 141 | Personnel problems with WAVES. |
| 142 | Clear understanding of overall organizational structure. |
| 143 | How to go about conducting organizational analysis. |
| 144 | How to write job or billet descriptions. |
| 145 | Dealing with civilian employees. |
| 146 | Lack of proper introduction and indoctrination to the new shore billet. |
| 147 | Work measurement system administration. |
| 148 | Finding housing facilities for married personnel. |
| 149 | Lack of military courtesy and discipline. |
| 150 | Complexity of civil service regulations. |
| 151 | Duplication of effort in making reports. |
| 152 | Too many reports. |
| 153 | No time to see all the people under you. |
| 154 | Unable to get work out of WAVES. |
| 155 | Unqualified personnel under me. |
| 156 | High rate of turnover of personnel. |
| 157 | Large number of directives. |
| 158 | Clear understanding of policies of the Command. |
| 159 | Making points clear to others. |
Not enough accomplished in conferences.

174. Uniform Code of Military Justice

175. Plan serving as cursos martial.

176. Turn-over of civilian personal.

177. Determining the number of people necessary per unit of work.

178. Expressing work in tangible, quantitative terms.

179. Understanding work units.

180. Attending too many department meetings.

181. Knowing who reports to you.

182. Finding work units for highly complex work.

183. How to report to you.

184. Working with people.

185. Getting those under you to express themselves freely.

186. Better understanding of civilian employees.

187. Getting those under you to report what they know.

188. Lack of sufficient personnel.

189. Better understanding of work of civilian employees.

190. Building team spirit.

191. Junior officers receive little administrative training.

192. Reservists have bad attitude.

193. Changes made too hastily.

194. Limited authority to "fire" unsatisfactory employees.

195. Attending conferences to inform officials.

196. Building team spirit.

197. How to make personnel feel they belong to the team.

198. Junior officers receive little administrative training.

199. Dependence upon permanent personnel to run shore stations.

200. Speeches before civilian service clubs, etc.

201. Little chance to express your views.

202. Conference limited to information from top officials.

203. Speeches before civilian service clubs, etc.

204. Little chance to express your views.

205. Junior officers receive little administrative training.

206. Dependence upon permanent personnel to run shore stations.

207. Speeches before civilian service clubs, etc.

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209. Conference limited to information from top officials.

210. Speeches before civilian service clubs, etc.

211. Little chance to express your views.

212. Conference limited to information from top officials.

213. Speeches before civilian service clubs, etc.

214. Little chance to express your views.

215. Conference limited to information from top officials.

216. Speeches before civilian service clubs, etc.

217. Little chance to express your views.

218. Conference limited to information from top officials.

219. Speeches before civilian service clubs, etc.

220. Little chance to express your views.

221. Conference limited to information from top officials.

222. Speeches before civilian service clubs, etc.

223. Little chance to express your views.

224. Conference limited to information from top officials.

225. Speeches before civilian service clubs, etc.

226. Little chance to express your views.

227. Conference limited to information from top officials.
What is non-productive time?

Confused lines of authority and responsibility.

Clear definition of authority and responsibility.

Matching billets with personnel.

Figuring productive time.

How to get officers who must work together to understand each other's problems.

Feeling free to express oneself in a department head meeting.

Clarity of directives.

Collecting data for reports.

Distribution of work load.

Timing the work load.

Assigning duties in group with greatest functional similarity.

Knowing the "informal organization."

How to use "informal" group leader.

Relating "productive time" as listed on present work measurement report to efficiency of personnel.

What technical staff people are supposed to do.

Time wasted in attending group discussion meetings.

Need for list of useful readings on management techniques.

Knowing standard "forr" forms which apply to your work.

Interpreting instructions from higher authority.

Making best use of personnel skills and training.

Recruiting civilian personnel.

Too many reports required.

Attitude of civilian employees toward military personnel.

Confused lines of authority and responsibility.

Inefficient allocation of personnel.

Personality clashes.

Not having contact with the "grapevine."

Stimulating subordinate's will to work.

Constant uncertainty as to station policy.

Constant uncertainty as to station plans.

Dividing work flow among workers.

Too much paper work.

Delegating work to others.

Digesting the important civil service regulations.

How to determine the minimum stand-by manpower requirements.

Highly complex functions do not lend themselves to direct measurement.

Allowing time for work planning.
| 236. | Obtaining smooth work flow. |
| 237. | Lack of teamwork among department heads. |
| 238. | Lost time through personnel absenteeism. |
| 239. | Selection of sequence of performing work. |
| 240. | Crowded working conditions. |
| 241. | Too much paper work. |

| 242. | Duplication of paper work. |
| 243. | Officers handling administrative duties at shore stations in the same way as military commands at sea. |
| 244. | Coordination among offices. |
| 245. | Coping with the unofficial lines of communication on the station. |
| 246. | Distributing work evenly. |
| 247. | Matching men to the jobs. |
| 248. | Finding time to think about present work methods. |
PART II

Instructions: Read the following questions and place an "X" in front of the response which most nearly represents your understanding or feeling about the question.

1. How familiar are you with the integrated Navy-wide Shore Establishment Work Measurement System?
   ___ Very familiar (Personally work on the report.)
   ___ Familiar (Responsible for a part of the report.)
   ___ Know our office submits such a report.
   ___ Know nothing about this report. (If you fall in this category, you need not answer questions 2 through 12. Even if you have only a brief acquaintance with the work measurement system, please answer all the questions the best you can.)

2. Which of the following do you consider to be the official purposes or objectives of the Navy-wide Shore Establishment Work Measurement System?
   ___ (a) To determine manpower requirements (allowances and civilian ceilings.)
   ___ (b) To compare the efficiency in manpower utilization at one station with another.
   ___ (c) To report to the secretarial level manpower data necessary to support the annual budget.
   ___ (d) All of the above.
   ___ (e) I am not certain.

3. Please check the following objectives of the Navy-wide Shore Establishment Work Measurement System which you feel the system is presently accomplishing:
   ___ Determining manpower requirements.
   ___ Comparing effective utilization of manpower at lake stations; for example, NTC, Great Lakes, and NTC, Bainbridge.
   ___ Providing data necessary to support the annual Navy-wide budget.
   ___ All of the above.
   ___ None of the above.

4. Do you happen to remember what factors are used as Work Units on the work measurement report submitted for your group?  Yes ___  No ___.

If "Yes," please list the unit or units briefly: ____________________________
5. To what degree do you consider the Work Unit assigned under the present work measurement system as representative of the work done by your group?

Excellent indication of work output.
Good indication.
Fair indication.
Poor indication.
No indication.

6. Is it possible to establish a Work Unit which is representative of your work output?  Yes  No

If "yes," please indicate your suggestion for a possible work unit:

7. Does the present work measurement system aid you in explaining why your station may be "over" or "under" the Navy-wide standard set for your particular type of organisation?  Yes  No

8. Assuming you have the kind of work measurement system you want, how valuable do you feel it would be as a method of determining and supporting personnel allowances and civilian ceilings?

A "must."
A valuable aid.
Not much aid.
A waste of time, effort and money.

9. Under the present system the Work Unit is finally determined at the Secretarial level. Would you prefer to establish your own work unit?  Yes  No

10. If every group is allowed to establish its own work units, with what degree of success do you think they could be used in connection with the present Navy-wide system?

With great improvement over present system.
Some improvement.
As good as present system.
Not as good as present system.
Would not work at all.

11. For your own use, do you presently use your own Work Unit to measure manpower utilization?  Yes  No

What is the purpose of such a Work Unit?
12. Using work measurement, to which of the following degrees do you feel it is advantageous to compare your department with a similar department at another shore station?

- A good way to measure relative efficiency.
- Gives some idea of effectiveness.
- Only slightly comparable.
- Such comparison gives a false impression.

13. Do you feel the Navy as a whole is:

- Making the best use of its on-board manpower.
- Making good use.
- Making poor use.
- Extremely wasteful of manpower.

14. Do you feel that your entire station is:

- Making the best use of its on-board manpower.
- Making good use.
- Making poor use.
- Extremely wasteful of manpower.

15. Do you feel that your immediate group is:

- Making the best use of its on-board manpower.
- Making good use.
- Making poor use.
- Extremely wasteful of manpower.

16. If you were given help on "how" to establish a work measurement system, would you be interested in developing and establishing a procedure to justify your personnel requirements?

Yes _____ No _____

17. How frequently do you review the specific objectives of your group?

- Weekly
- Monthly
- Quarterly
- Yearly
- Other — Specify: __________________________

18. How much value do you attach to a periodic review of the mission of your group?

- Great value
- Some value
- Little value
- No value.
19. How well are you acquainted with the duties and responsibilities of the person to whom you report?

- Very well
- Well
- Fairly familiar
- Rather vague
- Very little idea.

20. How well are you acquainted with the specific functions of the people reporting to you?

- Very well
- Well
- Fairly familiar
- Rather vague
- Very little idea.

21. Approximately when were billet descriptions last rewritten for your group?

- Within the month
- Within the quarter
- Within two quarters
- Within the year
- Over a year ago
- Never

22. What degree of value do you feel a rather thorough knowledge of how to "run up an organization chart has as a management technique"?

- Great
- Some
- Little
- No value.

23. How would you rate the degree of cooperation or lack thereof among the different offices of your station?

- Great deal of cooperation
- Some cooperation
- Little cooperation
- No cooperation.

24. In regard to work that requires action of several different groups or offices. (for example, receipt or transfer of radiotelephone from basic training to first duty station) how would you rate the degree of cooperation among these groups?

- Very high degree of cooperation
- High degree of cooperation
- About average degree of cooperation
- Less than average cooperation
- Very little cooperation.
25. To what extent do you feel duplication of effort in preparing reports has on the efficiency of your group?

- Greatly reduces work output.
- Is significant deterrent.
- Has little effect.
- Has no effect.

26. To what extent are work flow charts used by your group?

- Very much
- Frequently
- Occasionally
- Never
- Not familiar with work flow charts.

27. In regard to work that requires action of several different departments, do you feel that periodic meetings with representatives of these departments would be an aid?

- Very much aid
- Much aid
- Some aid
- Very little aid
- No aid.

28. The department head meetings referred to in the following questions are of the type in which individuals take an active part and are not to be confused with meetings carried on almost entirely by only one or two members of the group.

29. In general, as a device for getting things done how would you rate the group discussion method?

- Not effective
- Not very effective
- Somewhat effective
- Effective
- Very effective

30. Do you attend department head or division meetings?

- Yes
- No.

31. Do you as an individual usually take an active part in department head or division meetings?

- Always contribute
- Nearly always contribute
- Sometimes contribute
- Seldom contribute
- Hardly ever contribute..
31. What values would you see in having some group discussion meetings in your department or unit? (Check one or more.)

- A means for the top officers to gain an awareness of problems or difficulties in the work of the group.
- A means for members of the group to air personal grievances.
- A means for arriving at solutions to problems.
- A means for facilitating group acceptance of policies and decisions.
- A means for discussing a subject where no one in the group knows much about the subject.
- No value
- Other value; specify: ____________________________________________
APPENDIX B

COMMAND MANAGEMENT CHECK-LIST (FORM I)
OHIO STATE CONTRACTORS
November 13, 1952

Command Management Check-List
(Form I)

Introductory Statement

This Command Management Check-List is being distributed by representatives of the Ohio State University Research Foundation to officers of the Training Center. Your help in completing this check-list will be a definite contribution to the research effort on manpower utilization, which is rapidly becoming a matter of Navy-wide concern.

You can contribute most by giving your frank and honest reactions. The number stamped in the upper right-hand corner on this check-list will enable the Ohio State University representatives to follow up on any matters that may prove to be particularly helpful to the project. This information will not be given to any naval personnel, except in totals, thus making individual identification impossible.

Please note that the statements in this check-list refer to both military and civilian employees. Think of these statements in terms of your present duty and/or duty you have had within the past two years.
PART I

Instructions: Read the following questions and place an "X" in front of the response which most nearly represents your understanding or feeling about the question.

1. How familiar are you with the integrated Navy-wide Shore Establishment Work Measurement System?
   [ ] Very familiar (Personally work on the report.)
   [ ] Familiar (Responsible for a part of the report.)
   [ ] Know our office submits such a report.
   [ ] Know nothing about this report. (If you fall in this category, you need not answer questions 2 through 12. Even if you have only a brief acquaintance with the work measurement system, please answer all the questions the best you can.)

2. Which of the following do you consider to be the official purpose or objectives of the Navy-wide Shore Establishment Work Measurement System?
   [ ] To determine manpower requirements (allowances and civilian ceilings.)
   [ ] To compare the efficiency in manpower utilization at one station with another.
   [ ] To report to the secretarial level manpower data necessary to support the annual budget.
   [ ] All of the above.
   [ ] I am not certain.

3. Please check the following objectives of the Navy-wide Shore Establishment Work Measurement System which you feel the system is presently accomplishing:
   [ ] Judging manpower requirements.
   [ ] Establishing effective utilization of manpower at like stations (for example, NTC, Great Lakes, and NTC Bainbridge).
   [ ] Providing data necessary to support the annual Navy-wide budget.
   [ ] None of the above.

4. Do you happen to remember what factors are used as Work Units on the work measurement report submitted for your group? Yes [ ] No [ ]
   If "yes," please list the unit or units briefly: ____________________________

5. To what degree do you consider the Work Unit assigned under the present work measurement system as representative of the work done by your group?
   [ ] Excellent indication of work output.
   [ ] Good indication.
   [ ] Fair indication.
   [ ] Poor indication.
   [ ] No indication.

6. Is it possible to establish a Work Unit which is representative of your work output? Yes [ ] No [ ]
   If "yes," please indicate your suggestion for a possible work unit: ____________________________
7. Does the present work measurement system aid you in explaining why your station may be "over" or "under" the Navy-wide standard set for your particular type of organization? 
   Yes ___ No ___

8. Assuming you have the kind of work measurement system you want, how valuable do you feel it would be as a method of determining and supporting personnel allowances and civilian ceilings? 
   ___ A "must." 
   ___ A valuable aid. 
   ___ Not much aid. 
   ___ A waste of time, effort and money.

9. Under the present system the Work Unit is finally determined at the secretarial level. Would you prefer to establish your own work unit? 
   Yes ___ No ___

10. If every group is allowed to establish its own work units, with what degree of success do you think they could be used in connection with the present Navy-wide system? 
    ___ With great improvement over present system. 
    ___ Some improvement. 
    ___ As good as present system. 
    ___ Would not work at all.

11. For your group do you presently use your own Work Unit to measure manpower at station? 
    Yes ___ No ___ 
    What is the purpose of such a Work Unit? ________________  
    ________________ 

12. Using work measurement, to which of the following degrees do you feel it is helpful in trying to compare your department with a similar department at another Navy station? 
    ___ A way to measure relative efficiency. 
    ___ A means of effectiveness. 
    ___ Other slightly comparable. 
    ___ Such comparison gives a false impression.

13. If you were given help on "how" to establish a work measurement system, would you be interested in developing and establishing a procedure to justify your personnel requirements? 
    Yes ___ No ___

14. How frequently do you review the specific objectives of your group? 
    ___ Weekly 
    ___ Monthly 
    ___ Quarterly 
    ___ Yearly 
    ___ Other. Specify: ____________________________

15. How much value do you attach to a periodic review of the mission of your group? 
    ___ Great value 
    ___ Some value 
    ___ Little value 
    ___ No value.
16. How well are you acquainted with the duties and responsibilities of the person to whom you report?

- Very well
- Well
- Fairly familiar
- Rather vague
- Very little idea.

17. How well are you acquainted with the specific functions of the people reporting to you?

- Very well
- Well
- Fairly familiar
- Rather vague
- Very little idea.

18. Approximately when were billet descriptions last re-written for your group?

- Within the month
- Within the quarter
- Within two quarters
- Within the year
- Over a year ago
- Never.

19. What degree of value do you feel a rather thorough knowledge of how to draw up an organization chart has as a management technique?

- Great
- Some
- Little
- No value.

20. How would you rate the degree of cooperation on work handled among the different offices at your station?

- Great deal of cooperation
- Some cooperation
- Little cooperation
- No cooperation.

21. In regard to work that requires action of several different groups or offices, (for example, receipt or transfer of recruits from basic training to first duty station) how would you rate the degree of cooperation among these groups?

- Very high degree of cooperation
- High degree of cooperation
- About average degree of cooperation
- Less than average cooperation
- Very little cooperation.

22. To what extent do you feel duplication of effort in preparing reports has on the efficiency of your group?

- Greatly reduces work output.
- Is significant deterrent.
- Has little effect.
- Has no effect.

23. To what extent are work flow charts used by your group?

- Very much
- Frequently
- Occasionally
- Never
- Not familiar with work flow charts.
24. In regard to work that requires action of several different departments, do you feel that periodic meetings with representatives of these departments would be an aid?

____ Very much aid
____ Much aid
____ Some aid
____ Very little aid
____ No aid.

NOTE: The department head meetings referred to in the following questions are of the type in which individuals take an active part and are not to be confused with meetings carried on almost entirely by only one or two members of the group.

25. In general, as a device for getting things done how would you rate the group discussion method?

____ Not effective
____ Not very effective
____ Somewhat effective
____ Effective
____ Very effective

26. Do you attend department head or division meetings?
Yes _____ No _____

27. Do you as an individual usually take an active part in department head or division meetings?

____ Always contribute
____ Nearly always contribute
____ Sometimes contribute
____ Seldom contribute
____ Hardly ever contribute

28. What values would you see in having some group discussion meetings in your department or unit? (Check one or more.)

____ A means for the top officers to gain an awareness of problems or difficulties in the work of the group.
____ A means for members of the group to air personal grievances.
____ A means for arriving at solutions to problems.
____ A means for facilitating group acceptance of policies and decisions.
____ A means for discussing a subject where no one in the group knows much about the subject.
____ No value
____ Other value. Specify:

29. If you do attend group sessions in your department or division, check the following questions:

(a) Are these group sessions held?

____ weekly
____ monthly
____ on call
____ other; specify

(b) All things considered, how satisfied are you with the decisions arrived at in these group meetings?

____ Very satisfied
____ Moderately satisfied
____ Moderately dissatisfied
(c) Although you may or may not agree with the decisions reached in these group meetings, what is your reaction to the way the meetings are conducted? (You may check more than one.)

[ ] Useless waste of time.
[ ] Few people monopolize the discussion.
[ ] Everyone has an opportunity to speak.
[ ] Arrogant attitude on the part of superior officers makes good discussion almost impossible.
[ ] Attitude of suspicion on the part of subordinates makes good discussion almost impossible.
[ ] Attitude of mutual trust and confidence is favorable to good discussion.
[ ] Other; specify: _____________________________

(d) To what extent do you have an opportunity to say what you want to during these meetings?

[ ] Unlimited opportunity
[ ] Frequent opportunity
[ ] Occasional opportunity
[ ] Little opportunity
[ ] Very little opportunity.

PART II

Instructions: Read each of the following statements. Indicate your reaction to each item in the following manner:

"P" - Problem. - - Circle "P" if the statement suggests an area which is a problem for you.

"N" - No problem. - - Circle "N" if the problem stated is under control and does not interfere with getting the job done.

":" - Question about it. - - If the statement does not apply to you, or you are not familiar with it, circle the question mark.

<table>
<thead>
<tr>
<th>P ? N Learning the policies of the station.</th>
<th>P ? N Local commands do not set Work Units for work measurement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P ? N Little you can do about poor showing on work measurement report.</td>
<td>P ? N Unfamiliarity with who is the person to see to get things done on a station.</td>
</tr>
<tr>
<td>P ? N Conferences interfering with routine work.</td>
<td>P ? N A few people do most of the talking in meetings.</td>
</tr>
</tbody>
</table>
Being understood by subordinates.

Answering congressional mail.

Less control over military personnel on shore stations than at sea.

Knowing standard Navy procedures.

Too many officers' meetings.

Rotation of personnel for training purposes.

How standard rates are set for work measurement.

Personal gripes of subordinates.

Work Units for Work Measurement Report used at your station not comparable to work done at other stations.

Composing letters for superiors.

Lack of understanding of the place of staff functions in regard to authority.

Skill required in job performance not closely enough related to rating.

Routing of correspondence.

Keeping official records.

Overlooking the feelings and problems of those on lower levels.

Insecurity of civilian personnel due to lack of work load change.

Preparing work measurement reports.

Regulations--keep officers from delegating duties.

Time spent on Captain's Mast.

Official visitors.

Trying to satisfy more than one boss.

Supervising the work of WAVES.

Visualizing the total organization on the station.

Learning what is going on in other departments.

Using work flow charts.

Being understood by superiors.

Conflict of directives from the different bureaus and administrative offices.

Poor utilization of office and/or shop spaces.

Getting enlisted personnel to understand importance of their duties.

Extra duty on courts martial.

Making best use of personnel sent to you for duty.

Uneven flow of work.

Distribution of mail.

Work measurement disregards importance of maintaining steady work-force, even if work load fluctuates.

Placing newly received individuals in best billets.

Using chiefs for seaman duties.

Civilian administrators unduly influencing policy decisions.

Work measurement does not establish clear accountability.

Must take personnel the "Bureau" sends you.

How standard rates are chosen for work measurement.

Constant interruptions from superior officers.

Extra duties required of uniformed personnel.

Personnel allowances do not reflect needs.

Making organization charts.

Explaining the mission to all hands.

Knowing the "Naval Correspondence Manual."

Importance of "on-the-job satisfactions" as a morale builder.

Too much routine paper work.

Not enough officers' meetings.
PRINCIPLES OF ORGANIZATION

I. Introduction

1. The Authority Chain
   a. Command Structure
   b. Ladder of Authority
   c. Delegation of Responsibility

2. Standards of Performance
   a. Responsibility
   b. Authority
   c. Authority Tips

3. Authority Tips
   a. Effective Communication
   b. Clear Instructions

II. Organization Structure

1. Line and Staff
   a. Line Positions
   b. Staff Positions

2. Line Organization
   a. Line Functions
   b. Line Activities

III. Organization of Work

1. Work Organization
   a. Staff Organization
   b. Line Organization

2. Organization of Information
   a. Communication Channels
   b. Information Flow

IV. Organization of Resources

1. Organization of Resources
   a. Resource Allocation
   b. Resource Management

2. Resource Management
   a. Resource Planning
   b. Resource Forecasting

V. Organization of People

1. Human Resources
   a. Employee Relations
   b. Employee Benefits

2. Training and Development
   a. Training Programs
   b. Development Plans

VI. Organization of Processes

1. Process Organization
   a. Process Flow
   b. Process Efficiency

2. Process Improvement
   a. Process Analysis
   b. Process Optimization

VII. Organization of Facilities

1. Facility Organization
   a. Facility Planning
   b. Facility Management

2. Facility Use
   a. Facility Utilization
   b. Facility Maintenance

VIII. Organization of Information Technology

1. Information Technology Organization
   a. IT Infrastructure
   b. IT Security

2. Information Technology Use
   a. Data Processing
   b. Information Systems

IX. Organization of Finance

1. Finance Organization
   a. Budgeting
   b. Financial Planning

2. Financial Control
   a. Cost Control
   b. Revenue Management

X. Organization of Operations

1. Operations Organization
   a. Operations Planning
   b. Operations Execution

2. Operations Control
   a. Quality Control
   b. Performance Evaluation

XI. Organization of Technology

1. Technology Organization
   a. Technology Development
   b. Technology Implementation

2. Technology Use
   a. Technology Adoption
   b. Technology Integration
APPENDIX C

WORK MEASUREMENT INFORMATION FORM

USED AT NAVAL SHORE STATION "A"
WORK MEASUREMENT INFORMATION FORM

PURPOSE:

This form is to be given before and after using the Manual on Work Measurement. The correct answers are in the manual. The test is given "before" reading the manual and again "after" to help evaluate the effectiveness of the manual. It is not a test of your individual ability, except within the limits of the contents of the manual. For this reason, please do not guess at the correct answer. If you do not know, simply place an "X" in the space labeled "do not know."

INSTRUCTIONS:

(1) Place an "X" as indicated in the multiple choice questions. Some questions call for more than one correct answer. DO NOT GUESS. If you do not know, mark an "X" in the appropriate space.

(2) List only as many answers as called for in the question.

(3) Show all arithmetic in figuring the problem on performance rate.
1. At the present time the Navy Shore Establishment Work Measurement System applies to only four service functions. To which four of the following does it apply?

- (a) Administration
- (b) Fiscal
- (c) Supply
- (d) Training
- (e) Security
- (f) Communications
- (g) Public Works
- (h) Industrial Relations
- (i) Do not know

2. An objective of work measurement at the Bureau and Secretary of the Navy level is: (choose one)

- (a) to set wage rates and salaries
- (b) to get data to support the annual Navy budget
- (c) to provide a basis for time and motion studies
- (d) do not know

3. Assume you are in charge of an office whose function is to issue war bonds. A record card is made out for each bond issued. A completed record card is the work unit you have chosen for measuring the work. Suppose you have three people working in the office, each putting in an eight-hour day entirely devoted to preparing record cards. A count of the number of record cards accumulated at the end of a particular day is 120.

Figure the performance rate for this day

Performance rate

Do not know.
4. Continue to assume that you are in charge of the war bond office mentioned in Item 3 above. You still have the same three people working the same amount of time. On January 16th your performance rate was 0.6 and on January 20th your performance rate was 0.9.

   The performance rate on January 20th shows:
   ___(a) more productive use of man hours
   ___(b) less productive use of man hours
   ___(c) do not know

5. Select the statement below which does not describe how work measurement can be used at the local command level.
   ___(a) determining manpower requirements
   ___(b) comparing performance in comparable operations
   ___(c) indicating the need for management studies
   ___(d) checking results of action taken
   ___(e) a solution for getting work out on time
   ___(f) do not know

6. List up to six work units which could be used to measure work in your department.

   ____________________________  ____________________________
   ____________________________  ____________________________
   ____________________________  ____________________________

7. Select the statement below which describes the least likely step you would take in devising a work measurement system in your department.
   ___(a) Select a work unit
   ___(b) Identify possible areas for work measurement
   ___(c) Do a time and motion study
   ___(d) Determine the objectives of your work measurement system
   ___(e) Provide for continuous review and development of specific management improvements
   ___(f) Set up a report system
   ___(g) do not know
6. Measurement standards may be set by:
   ___(a) engineering standards resulting from time and motion study
   ___(b) using past performance
   ___(c) either of the above
   ___(d) do not know

9. The work count can be obtained by:
   ___(a) weighing
   ___(b) counting
   ___(c) tabulating
   ___(d) any of the above
   ___(e) do not know

10. Work measurement may be described best as the management tool which:
   ___(a) solves work-flow problems
   ___(b) relates manpower "input" to performance in terms of "output."
   ___(c) shows you whether your work unit is representative
   ___(d) do not know

11. Among other things, a work unit must be:
   ___(a) a single unit which measures all the work
   ___(b) representative of the work being performed
   ___(c) expressed in terms of number of people on board
   ___(d) any of the above
   ___(e) do not know

12. Which one of the following work units would be most appropriate for use in reporting the work of an entire department?
    ___(a) an element of a part produced or element of a service e.g. - gallons of fuel used
    ___(b) several services, e.g. - transportation, maintenance of buildings and grounds
12. (cont'd.)

  ___(c) one specific service, e.g., number of security inspections
  ___(d) do not know

13. At the present time all naval shore activities report work measurement data to:

  ___(a) the Chief of Naval Personnel
  ___(b) the Chief of Naval Operations
  ___(c) the appropriate bureau having management or technical control over them
  ___(d) the Bureau of S and A
  ___(e) do not know

14. Indicate your general feeling toward work measurement as it may apply to your department or organizational unit. (check one)

  ___(a) Do not consider work measurement essential in my department's operation
  ___(b) Undecided as to the merits of using work measurement in my department.
  ___(c) Tend to believe in using work measurement in my department, but have some important reservations.
  ___(d) Whole heartedly believe in using work measurement in my department.
  ___(e) Feel that work measurement is an absolute essential for good management.
  ___(f) Do not know enough about work measurement to have very much of an attitude about its use in my department.
APPENDIX D

GROUP MEETING EVALUATION FORM

USED AT NAVAL SHORE STATION "A"
GROUP MEETING EVALUATION FORM

Date of Meeting
Organizational Unit
Number in Group

A. Did the group meeting help you get the meaning of work measurement?

<table>
<thead>
<tr>
<th>No help</th>
<th>Little help</th>
<th>Some help</th>
<th>More than average help</th>
<th>Great help</th>
</tr>
</thead>
</table>

B. Were the purposes of the meeting made clear to you? (Did you know what the group was trying to do?)

| Not at all clear | Vague | Partially clear | Clear enough | Completely clear |

C. On the basis of your experience in this meeting, rate the worth of "the small group meeting" as a means for work measurement indoctrination and training.

| Worth nothing | Helps very little | It helps | Helps a lot | Absolutely necessary |
1. In your opinion what was wrong with the meeting?
   (Point out specific things.)

2. What did you like about the meeting?
   (Point out specific things.)
APPENDIX E

EXAMPLES OF WORK MEASUREMENT REPORTS

SUBMITTED AT NAVAL SHORE STATION "A"
Table II

DIRECTORY SERVICE, NAVAL SHORE STATION "A"

WORK MEASUREMENT PERFORMANCE DATA FOR TWO-WEEK PERIOD

WEEK ENDING 23 May 1953

| SUBFUNCTION                  | DESCRIPTION            | MANHOURS EXPENDED | MANHOURS COMPLETED | P/R MANHOURS | FACTOR | WEIGHTED MANHOURS | THIRD-ARY STANDARD | MANHOURS PER UNIT | STANDARD EFF. |
|------------------------------|------------------------|--------------------|---------------------|--------------|--------|--------------------|--------------------|--------------------|----------------|---|
| READDRESSING (Mail readdressed and addresses filed) | PIECES HANDLED | 1,229 | 24,522 | .0501 | 1 | 24,122 | .0334 | 907 | 78.6 |
| MAINTAINING CARD FILE | PERSONS SERVED | 46 | 947 | .0486 | 1.93 | 1,829 | .0661 | 62.6 | 136 |
|                            | CARDS CHECKED AND TYPED | 69 | 1,833 | .0376 | 1.414 | 769 | .0185 | 79.9 | 43.4 |
| TOTAL MANHOURS EXPENDED (Production Time) |           | 1,344 | xxxxx | xxxxx | xxxxx | 27,120 | xxxxx | 100.0 | 5 |
| UNMEASURED WORK            |           | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx |
| TOTAL MANHOURS EXPENDED    |           | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx | xxxxx |

Production Time: 1,344
Standard Production Time: 1,059.5
Production Efficiency: 78.6

Manhours Expended: 1,344
Consolidated Workload: 27,120
Consolidated Production Rate: .0446

Summary of Number of Personnel on Board
On Leave
Hospitalized
Unmeasurable work

Summary of Unmeasured Work
Production
Supervisory
Total
## Table XXI

**Commissary Department**

**Supply and Commissary Department**

<table>
<thead>
<tr>
<th>Subfunction</th>
<th>Work Units</th>
<th>Man Hours Expended</th>
<th>Work Units Completed</th>
<th>P/R</th>
<th>Mess Hours</th>
<th>Mess Cooks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Direction</td>
<td>On Board Count (- Mess Cooks)</td>
<td>151</td>
<td>1624</td>
<td>.0930</td>
<td>6178</td>
<td>.4483</td>
</tr>
<tr>
<td>2. Accounting</td>
<td>On Board Count (- Mess Cooks)</td>
<td>288</td>
<td>1624</td>
<td>.1773</td>
<td>3360</td>
<td>.3757</td>
</tr>
<tr>
<td>3. Personnel</td>
<td>On Board Count (+ Mess Cooks)</td>
<td>223</td>
<td>4160</td>
<td>.0536</td>
<td>12962</td>
<td>.2452</td>
</tr>
<tr>
<td>4. Galley 5</td>
<td>Rations Fed</td>
<td>1596</td>
<td>18242</td>
<td>.0875</td>
<td>15225</td>
<td>.2544</td>
</tr>
<tr>
<td>5. Galley 154</td>
<td>Rations Fed</td>
<td>1052</td>
<td>8943</td>
<td>.1176</td>
<td>6807</td>
<td>.3678</td>
</tr>
<tr>
<td>7. Galley 609</td>
<td>Rations Fed</td>
<td>1756</td>
<td>18505</td>
<td>.0971</td>
<td>15225</td>
<td>.2544</td>
</tr>
<tr>
<td>8. Galley 1009</td>
<td>Rations Fed</td>
<td>2292.5</td>
<td>59856</td>
<td>.3533</td>
<td>15225</td>
<td>.2544</td>
</tr>
<tr>
<td>9. Shop Stores</td>
<td>Office Invoices</td>
<td>65</td>
<td>361</td>
<td>.1801</td>
<td>unskilled</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Issues Pounds skilled</td>
<td>73</td>
<td>4162</td>
<td>.0175</td>
<td>136</td>
<td>.0326</td>
</tr>
<tr>
<td>10. Cold Storage</td>
<td>Office Libra</td>
<td>40</td>
<td>392</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provisions Tonnage</td>
<td>962.5</td>
<td>275.75</td>
<td>3.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Butcher Shop</td>
<td>Tonnage issued</td>
<td>843.25</td>
<td>25</td>
<td>33.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Week ending 10 May 1953**

**Signature**

Commissary Officer
<table>
<thead>
<tr>
<th>Subfunctions</th>
<th>Work Unit</th>
<th>Manhours Expended</th>
<th>Work Units Completed</th>
<th>Performance rates (1)÷(2)</th>
<th>Weighting factor</th>
<th>Weighted P = (3)x(4)</th>
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</thead>
<tbody>
<tr>
<td>Mast Section</td>
<td>Initiation of Discipline Cases</td>
<td>1512</td>
<td>140</td>
<td>10.8</td>
<td>.22</td>
<td>2.38</td>
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<tr>
<td>Court-Martial Section</td>
<td><strong>Trial and Preparation of Courts Martial Records</strong></td>
<td>1648</td>
<td>66</td>
<td>28.10</td>
<td>.27</td>
<td>7.56</td>
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<tr>
<td>Administrative Section</td>
<td><strong>Final record entries</strong></td>
<td>7184</td>
<td>161</td>
<td>13.57</td>
<td>.31</td>
<td>4.21</td>
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<tr>
<td>Legal Assistance and Review</td>
<td>Legal Assistance</td>
<td>336</td>
<td>92</td>
<td>3.65</td>
<td>.05</td>
<td>.18</td>
</tr>
<tr>
<td>Departmental Administration</td>
<td><strong>Number of People Assigned to Legal Department</strong></td>
<td>504</td>
<td>37</td>
<td>13.62</td>
<td>.07</td>
<td>.95</td>
</tr>
</tbody>
</table>

* This figure reflects only cases received and completed in this section during the period of this report.

** This work unit statistic is based upon the number of final service record entries of completed disciplinary cases tried by Ninth Naval District and Administrative Command, including cases in this section at commencement of survey. This figure does not represent many of the other functions of this section such as preparation of absentee and personnel lists, work concerned with confinements and releases, etc.

*** This statistic excludes time spent in this section on matters of brief liaison.

NOTE: Ten man hours are expended monthly in the operation of the system.
APPENDIX F

REVISED WORK MEASUREMENT INFORMATION FORM

USED AT NAVAL SHORE STATION "C"
WORK MEASUREMENT INFORMATION FORM

PURPOSE:

This form is to be given before and again after using the Work Measurement Manual. Its purpose is not to test you but to check on the effectiveness of the written material. For this reason, please do not guess at the correct answers. If you do not know, simply check the space labeled "do not know."

INSTRUCTIONS:

(1) Indicate your answers in the spaces provided. Some questions call for more than one response.

(2) DO NOT GUESS. If you do not know, simply check the space labeled "do not know."
1. Work measurement may be described best as the management tool which:
   (Check one)
   
   (a) determines the objectives of your organization.
   (b) solves work-flow problems.
   (c) shows the relationship between work turned out and the manpower required to turn out the work.
   (d) shows you whether your work unit is representative.
   (e) do not know

2. Work measurement is not completely new. All naval shore activities report work measurement data to:
   (Check one)
   
   (a) the Chief of Naval Personnel.
   (b) the Chief of Naval Operations.
   (c) the appropriate bureau having management or technical control over them.
   (d) the Bureau of Supplies and Accounts.
   (e) Office of Industrial Relations.
   (f) do not know

3. As a first step in laying the groundwork for work measurement, an initial survey of objectives and functions is important because:
   (Check the best answer)
   
   (a) it gives an over-all picture of your organization and the management problems that need attention.
   (b) it gives you something to do while you are trying to decide what work units to select.
   (c) objectives and functions can never be changed.
   (d) work measurement must minutely cover every objective and function.
   (e) it automatically indicates the form to be used in reporting work measurement data.
   (f) do not know
4. Assume you are in charge of an office whose function is to issue war bonds. A record card is made out for each bond issued. A completed record card is the work unit you have chosen for measuring the work. Suppose you have four people working in the office, each putting in an eight-hour day entirely devoted to preparing record cards. A count of the number of record cards accumulated at the end of a particular day is 320.

Figure the performance rate for this day. (Show your computation.)

Performance rate

_________ Do not know

5. Assume you are in charge of the Transfer Division of the Personnel Department. You have ten people writing Recruit Transfer Orders. On February 15, your performance rate was 1.0 and on March 15 your performance rate was 1.5. The performance rate on March 15 shows a:

(Check one)

___(a) more productive use of man-hours.

___(b) less productive use of man-hours.

___(c) do not know

6. "The number of work units on hand at the end of the reporting period." This statement is a definition of:

(Check one)

___(a) performance rate

___(b) variable work units

___(c) consolidated workload

___(d) weighted work units

___(e) backlog

___(f) do not know
7. Among other things, a work unit must be:
   (Check one)
   ___ (a) a single unit which measures all the work,
   ___ (b) representative of the work being performed,
   ___ (c) expressed in terms of number of people on board,
   ___ (d) any of the above
   ___ (e) do not know

8. Select the statement below which describes the least likely step you would take in devising a work measurement system in your department. (Check one)
   ___ (a) Select a work unit
   ___ (b) Identify possible areas for work measurement
   ___ (c) Detail one person to choose work units and set up a reporting system
   ___ (d) Determine the objectives of your work measurement system
   ___ (e) Provide for continuous review and development of specific management improvements
   ___ (f) Set up a report system
   ___ (g) Do not know

9. "An expression of the man-hours expended divided by the work units completed." This statement is a definition of:
   (Check one)
   ___ (a) subfunction
   ___ (b) consolidated workload
   ___ (c) performance rate
   ___ (d) weighting
   ___ (e) backlog
   ___ (f) do not know
10. Work measurement at the local level has a number of objectives. Check two statements below which are least likely to be objectives of local work measurement.

___ (a) justifying personnel allowances
___ (b) estimating successfully the number of additional personnel necessary to do the job
___ (c) obtaining data to support the annual Navy budget
___ (d) checking results of action taken
___ (e) analyzing past performance
___ (f) comparing the efficiency in manpower utilization at one station with another
___ (g) locating areas in need of management improvements
___ (h) do not know

11. One characteristic of a good work unit is that it is tangible. From the list below choose three other characteristics of a good work unit.

___ (a) readily accessible for counting
___ (b) measures input
___ (c) has consistent and familiar terminology
___ (d) representative of the work being performed
___ (e) readily loses its identity
___ (f) shows quality of work
___ (g) do not know

12. List up to six work units which could be used to measure work in your department.

________________________________________  _______________________________________
________________________________________  _______________________________________
________________________________________  _______________________________________
13. Indicate your general feeling toward work measurement as it may apply to your department or organizational unit. (check one)

(a) Do not consider work measurement essential in my department's operation.
(b) Undecided as to the merits of using work measurement in my department.
(c) Tend to believe in using work measurement in my department, but have some important reservations.
(d) Wholeheartedly believe in using work measurement in my department.
(e) Feel that work measurement is an absolute essential for good management.
(f) Do not know enough about work measurement to have very much of an attitude about its use in my department.

14. Indicate below your general feeling toward the following statement:

"With an understanding and receptive point of view toward management techniques, naval officers can bring about a great deal of management improvement at naval shore stations on a relatively unrefined, commonsense basis." (check one)

(a) strongly disagree
(b) disagree
(c) uncertain
(d) agree
(e) strongly agree

15. Rank the effectiveness of the following means for getting naval personnel to understand, accept and use work measurement.

(Use a scale from 1 to 5, using 1 to indicate the most effective means and 5 to indicate the least effective means.)

(a) Work measurement manual alone, promulgated by a strong directive from higher authority.
(b) Work measurement manual used in connection with small group meetings and resultant individual participation.
(c) Work measurement manual used in connection with small group meetings, staff assistance in "helping the officer to help himself," and resultant individual participation.
(d) Work measurement manual used in connection with formal course.
(e) Work measurement manual used in connection with large formal conference.
APPENDIX G

SMALL GROUP MEETING EVALUATION FORM

USED AT NAVAL SHORE STATION "G"
SMALL GROUP MEETING EVALUATION FORM

Organizational Unit
Number in Group

A. Did the group meeting help you get the meaning of work measurement?

<table>
<thead>
<tr>
<th>No help</th>
<th>Little help</th>
<th>Some help</th>
<th>More than average help</th>
<th>Great help</th>
</tr>
</thead>
</table>

B. To what extent did these group meetings contribute to your willingness to give work measurement a try-out in your department or division?

On the basis of these meetings I am:

<table>
<thead>
<tr>
<th>Not at all sold on trying it</th>
<th>Undecided whether I should give it a try</th>
<th>Willing to give it a try but have reservations</th>
<th>Willing to completely sold on trying it</th>
</tr>
</thead>
</table>

C. On the basis of your experience in these meetings, rate the worth of "the small group meeting" as a means for work measurement indoctrination and training.

<table>
<thead>
<tr>
<th>Worth nothing</th>
<th>Helps very little</th>
<th>It helps</th>
<th>Helps a lot</th>
<th>Absolutely necessary</th>
</tr>
</thead>
</table>
D. In your opinion what was wrong with the meetings?
   (Point out specific things.)

E. What did you like about the meetings?
   (Point out specific things.)

F. What suggestions do you have for improving these group meetings?
   (Make specific recommendations.)
APPENDIX H

COMPLETE LIST OF "BEFORE" AND "AFTER"

ENUMERATION OF WORK UNITS

(NAVAL SHORE STATION "O")
RECRUIT TRAINING COMMAND

Before

Record firing of recruits

Number of rifles overhauled

Personnel outfitted in leggings

Stencil room

Baggage room

Linen locker

MAA

Clothing checkers

Logging drafts

Number men received

Number men in staff

Work hours per man

Output of work in any one of the activities in R and C

Forming office

Personnel office

Material office

Lost and found

Clothing issue

Front office

Number of absentees

Final achievement marks

Number of hours per subject

Number of hours for curriculum
Medical Co-ordinator

Number of daily schedules put out

After

Number recruits processed
Stencil rooms
Baggage room
Forming office
Administration office
Number hours worked
Number men on staff
Objective
Determining objective
Area - Identifying
Selective work unit
Improvement
Management
Initial survey of objective
Setting up report system
Review and development
Laying the groundwork
Setting up a recording system
Topics
Groups
Score cards
Rifles

Instructors - Number of

Number of recruits who fire

Number of ships in the command

Number of topics in a school

The recruit

Companies of recruits

Military duties

Supervision

Maintenance

SERVICE SCHOOLS COMMAND

Before

Instruction

Students

Letters

Interviews

Evaluation trips

Requests for Prob Solv

Training Aid output

Notices

Preparation of reports

Classroom area

Equipment necessary
Preparation of weekly grade cards

liberty and duty lists

Space vs. student input

Effectiveness of teaching methods on large-small groups

Manhours

Instructor student ratio

Ratio at various class average grades

Hand tool class

Arc welding class

Oxyacetylene welding class

Sheet metal class

Blacksmithing class

Amount of material used

Quality of work

Time allocation

To measure learning in machinery, repairman must be of a performance test and theory of a written type. To measure learning in any other way is beyond me.

Number classroom sessions per instructor

Number shop session per instructor

Time preparing for classroom or shop sessions

Time spent in shop improvement

Time spent in self-improvement (visiting other classes)

Administrative or military duties

Time element for grading practical exams

Class periods of instruction
Grading one exam paper

Making one lesson plan

Manufacture of a new training aid

Attending one in-service training lecture

After

Letters written

Routing slips

Telephone calls

Adm. conference

Personal interviews

Reports

Number of students

Number of subjects

Grading exams

Making exams

Subjects taught

Developing training aids

Instruction

Examinations administered

Examinations corrected

Student evaluation

Military duties

Writing lesson plans ("Not certain I fully understand exactly what is wanted here"—written at bottom of this page)
Exam writing
Exam evaluation
Instructor load
Military duties of instructors
Administrative duties
Evaluating student perf.
Muster of personnel
Instructional time spent in class
Testing
Preparation of weekly grade cards
Teaching subject
Study guide preparation
Training and preparation
Study room instruction
Practical application (student)
Instructor, supervisor and adjutant billets
Instruction class non shop...
Job sheets
Project design grading
Analyzing results of exams, curriculum
Research reading
In-service training
Project preparation
Information sheets
Various projects mfg by trainees
Number phases supervised
Supervisory work
Number of periods
Instructional time
Camp results
Examination changes
Shop improvements
Curriculum changes
Number of new exam questions prepared
Number of periods used in classroom and in lab

ADMINISTRATIVE COMMAND
EXECUTIVE DEPARTMENT

Before

Ledger posting
Preparing reports
Filing
Budget preparation
Budget assembly
Miscellaneous fiscal detail
Rooms cleaned
Heads cleaned
Persons served at meals
Rations prepared
Stores issued
Bar cleaned and stocked
Number of square feet of floor space cleaned

Number of personnel on board

Number of personnel trained for various duties. (When broken down, this training for various duties could be several work units.)

Rations prepared

Rations served

Rooms cleaned

Drinks served

Art Layout

Sports news

SSU news

RTC news

AdCom news

Layout and editing

Ledger posting

Processing obl. documents

Typing reports

Process expend. lists

Stencils (duplicating facilities)

Admiral Kidd membership

Incoming correspondence

Plan of the day

Daily watch list

Hoist
Clippings routed
Public information
Distribution of Hoist

SECURITY DEPARTMENT

Before

(None)

After

Car passes
Civilian I. D.
Administrator
Security coordinator
Finger prints
Movie passes
I. D. pictures taken
I. D. cards lamination
Logging of all I. D. cards
Press type photography
Portraits taken
Photostats completed
Confine ments processed
Number of watches
Hours of security patrolling
Before

Incoming correspondence routed
Outgoing correspondence dispatched
Correspondence filed
Incoming correspondence logged
Outgoing correspondence logged
Directions filed
Routing slips for incoming mail
"Forwarded" endorsements completed
Dispatches checked and filed
Separate handling required for confidential mail
Filing outgoing routine mail
Mailing outgoing correspondence (U. S. mail)

After

Routing incoming mail
Dispatching outgoing mail
Logging incoming mail
Logging outgoing mail
Filing material
Preparing routing slips
Outgoing letters serialized
Outgoing letters not serialized
STO's inserted in envelopes
Dispatches filed
Routing slips reviewed—incoming mail

PERSONNEL DEPARTMENT

Before

Transfers
Receipts
Leaves
Discharges and reenlistments
Record entries
Daily diaries
Daily personnel receipts
Daily personnel losses
Daily internal location changes
Leave processing
Leave papers
Rating procedures
Manual procedure required to process changes
Service records profiled
Ibm. cards completed
Rating
Personnel classified
R. I. receipt cards
I. D. Cards
Standard transfer orders
Orders to close
Incoming correspondence
Outgoing correspondence
Dispatches
Requests of all types
Advancement in rating
Accounting
Monthly cards report—officers detached, transferred, etc.
Monthly cards report—officers read, TAD
Monthly cards report—officers completing TAD
Running record and changes thereto of roster of officers
Monthly leave report

After
Persons interviewed
Persons tested
Persons selected
Discharges
Leaves
Transfers
Receipts
Personnel accounting
Separation
Ratings
Amount of correspondence
Advancement in rating
Accounting
Leave records
Assignments
Tests administered
Profile entries—TAD orders
Officers leave
Supervision
Supervisory administration
Filing
Security
Routing slips
Administration—military watches
Receipt of men
Transfer of men
Rates
I. D. cards
Supervision and administration
Personnel gains
Personnel losses
Changes to cards in file
Monthly reports
SPECIAL SERVICES DEPARTMENT

Before

Letters and memos written

After

Number of library books issued
Number of visitors at Reception Center
Number of telephone calls at Reception Center
Number of projects worked on (Hobby Shop)
Number of participants (Golf Course)
Number of alleys in use (Bowling Center)
Number of sales at Hobby Shop
Number of people using Hobby Shop
Pool tables in use

COMMUNICATION DEPARTMENT

Before

Retyping messages
Corrections to pubs.
Handling telegrams
Filing messages
Logging messages
Traffic reports
Filing directory cards
Addressing transfer cards
Mail sorting
Directory service for all classes of mail
Sorting newspapers, etc.
Window clerk

After
Messages received and sent
Publications correcting
Telegrams handled
Mail worked at directory files
IBM cards filed
IBM cards endorsed
Parcels worked
Roster mail worked
Mail truck trips

SUPPLY AND FISCAL

Before
Dollar value of issues
Dollar value of inventory
Number of invoices processed
Number of 458's processed
Recruit input
Number of sea bags processed (personal effects)
Dollar value of cash sales
Correspondence
Public vouchers
Pay records
Allotment authorizations
Substantiating vouchers
Draft orders
Number of recruits outfitted
Number of naval requisitions processed
Number of personal effects cases handled
Money value
Allotments
Pay record vouchers
Transportation requests and meal tickets
Number of items counted
Items issued (number)
Deliveries made
Orders placed
B/L's written
Recruit input (number)
Invoices processed
Amount cash
Pay records received
Checks written

Pay records transferred

Completed IBM issue cards

Number of items received

Number of items inspected

Staff requisitions

Inspection reports

Surveys

Acquisitions (plant account)

Number of rations prepared daily

Number of pounds of provisions handled

Food preparation

Quality of menu

Production of food

Issuing provisions

Receiving provisions

Man-hours

Clean-up procedure

Time factors

Money value

Invoices written

After

Dollar value

Number of recruits
Number of requisitions
Number of shipments
Number of personal effects received
Number of sales made
Line items
Line items issued
Line items received
Line items inspected
Line items delivered
Requisitions completed
Tons received
Payees (number of persons paid)
Vouchers (pay record)
Public vouchers
Dollar value of issues
Dollar value of inventory
Number of 428's filled
Transfers
Take ups (new accounts)
Transportation requests issued
Recruit input
Seabags processed
Number of TWT's
Number of items charged on books
Weight of items issued
Forms typed
Jash sales

Invoices received and shipped

Pay roll vouchers

Checks written

Meal tickets issued

Plant account acquisitions

Plant account dispositions

Surveys

Contracts

Inspection reports

Allotments

Discharges

Rations fed

Stores received

Stores expended

Money value issued

Ration cost

Money value of stores received

Poundage handled

Number of accounts handled

Butcher shops

Bake shop

Galley's

Dry stores
Before

Health record receipts
Health record transfers
Hospital transfers
Physical exam performed
Patients admitted
Preparation for E
Material expenditures
Purchase requisitions
Material inventory
Allotment . . . control
Accounting . . .

After

Recruit examination
Treatments (out-patients)
Days on sick list
Psychiatric exam
Physical examinations
In-patient sick days
Blood donors processed
Psychiatric evaluations
Health record receipts
Personnel complement
Before

(none)

After

Dental sittings
Dental examinations
Dental X-rays taken
Dental X-rays developed
Time spent processing paper work
Reports
Restorations completed

(Finance Section of the Department)

Requisitions
Inspection report
Plant account cards
Ledger cards
Stock cards
Issue . . .
PUBLIC WORKS DEPARTMENT

Before

Square feet
Gallons
Cubic yards
Linear feet
Pounds

After

Cubic yards
Square feet
Tons
Work requests
Stub requisitions
Estimate sheets

LEGAL AND DISCIPLINE DEPARTMENT

Before

Court write-up
Service record entries
Hold list
After

Processing courts
Insurance
Processing frauds

CHAPLAINS DEPARTMENT

Before

Counseling interviews
Funerals
Weddings
Marriages
Religious instructions - individual or group
Divine services
Character guidance lectures
Rites, rituals, ceremonies
Standing by or ready availability of chaplain
Interviews
Letters written

After

Counseling interviews
Funerals
Weddings
Baptisms

Religious instructions

Divine services

Character guidance lectures

Lectures

Letters answered

Interviews

Religious administrations

Cases
APPENDIX I

COMPLETE LIST OF GROUP MEETING EVALUATION COMMENTS

(NAVAL SHORE STATION "C")
RESPONSES TO THE QUESTION, "IN YOUR OPINION WHAT WAS WRONG WITH THE MEETINGS?"

1. Even though the discussion was elementary, it was still over the heads of most of us. Terms must be defined before they are discussed.

2. Instruction was over the heads of two-thirds of class.

3. Think the instructions could have been broken down and made more explanatory.

4. There are phrases and words used at the meeting which are unfamiliar to most, as this is the first time that dealings in work measurement have come in contact with us.

5. Most of the material covered was over the heads of the majority of the group. The lecture was termed for a college group that had some knowledge of the subject.

6. Due to the subject being relatively new to me, the information and instruction was too much for me to absorb well.


8. It seemed to me as if the assumption was made that the people participating had had college training, which was not the case in many instances.

9. Example too complex and incomplete. Did not point out some facts for better manpower utilization.

10. Difficult to get the maximum good out of the meeting without previous information. Should have had time to read manual before meeting.

11. No agenda for meeting was prepared.

12. Some information should have been given out to the men ahead of time. In other words, I had no idea what the meeting was called for or to discuss.

13. Not enough indoctrination before digging into prepared material.

14. Lack of a motivating factor. An advance notice relative to the subject should have been distributed prior to the meeting.

15. No motivation. Was not convinced that this would help. Did not know what to expect at the meeting. Felt that meeting was taking up time that was needed for other things.
16. Should have been notified in advance as to what the meetings were to be about, in order to give it some thought.

17. Most of group so totally unfamiliar with work measurement as to be unable to advance many suggestions or recommendations.

18. Unfamiliarity of instructors in regard to work measurement.

19. Nothing except all departments could stand more instruction.

20. Need more instruction.


22. Nothing wrong. I feel that any discussion on the feasibility of improving proficiency is worthwhile.

23. The meeting was very informative and I have no adverse comments.

24. Not enough time was used in explaining how to arrive at an acceptable work unit.

25. More stress should be placed on how to establish work units; by examples, as applied to the problems of one or more members of the group.

26. Too much material covered in meetings that was adequately covered in the manual.

27. Too much time spent on the six steps. Too much time spent on putting chart on board.

28. Possibly too much time spent in reviewing the "steps" at the second session, which were spelled out in the manual. I believe a chart of the steps placed in the front of room or "steps" written on blackboard before meeting would have permitted additional time to have been spent on the development of good work measurement units.

29. Second meeting devoted too much to elemental review of manual material. Having already reviewed the manual and completed a tentative set-up for this division, our group would have been able to get the same benefit from a five minute personal conference with Mr. Tompkins on specific questions.

30. Too much time spent on elementary background and too little on the actual operation of work measurement.
RESPONSES TO THE QUESTION, "WHAT SUGGESTIONS DO YOU HAVE FOR IMPROVING THESE GROUP MEETINGS?"

1. Presentation of more concrete examples in presenting the picture of work measurement in an actual case.

2. Less time spent on elementary background and more on the actual operation of work measurement.

3. More concrete examples of work measurement system applicable to fiscal functions.

4. Have more examples of small offices with about four major work units.

5. State examples and show how and why work measurement is necessary. Try to create a need for the project thereby arousing more interest.

6. A little more background on work measurement:
   a. what it is
   b. how it has benefited other activities
   c. how it can apply to Naval Shore Station "C."

7. Give more detailed information.


9. If a must—so state. If so stated, advise all people to take more notes. See "Introduction to Work Measurement Manual." If this is a must, start course by defining various terms and terminology.

10. The subject should be explained more thoroughly. It should be shown exactly what can be gained by this research.

11. More specific objectives, for instance:
   1. How many functions should be measured in a department?
   2. Can statistics presently on file be used or must individual reports from persons on the job be compiled?

12. Be more specific in explaining our part in preparing the reports.

13. Somehow give us a more specific understanding of what is expected. I've spent nearly ten years in Navy as general line officer—been indoctrinated and do believe one mission of peacetime Navy is training. The axiom, "Once you've learned your job you are no further good to the Navy unless you teach it to someone else," is in my blood. How can work measurement measure this type training program? Advantages are more obvious in staff corps departments as they work with greater specialists.
14. A closer association or tie-in between performance data and quality should be devised, plotting curves of each on same graph to depict how one influences the other.

15. Plot a curve showing tie-in between performance data and quality.

16. Be able to give concrete answers to questions concerning work measurement rather than examples.


18. How to apply work measurement data to management problems.

19. Subject is too big as brought out—would take too many meetings. Use 90% of the time for motivation and 10% to pass out simplified one page form which can easily be filled out by each school every other week. Since all of the schools deal in many of the same work units, such a uniform form is feasible and would give a fair value of the performance rate.

20. Change approach of "we are merely trying something new and are not sure"—which did not motivate us.

21. Groups should be confined to related departments: such as Supply and Fiscal, Clothing and Small Stores, and Commissary, which are all a part of the Supply group. Public Works was foreign to this group.

22. It might be well to have a meeting of all groups together after each group has been instructed separately. This might be an overall discussion of all problems of the several departments.

23. Keep departments with common problems together or better still, instruct groups from one department only separately.

24. Smaller group.

25. Smaller related groups, separating clerical from mechanical schools.

26. Holding the meetings with very small groups, so that more specific help can be given to the people involved.

27. Smaller groups made up of only related departments.

28. Smaller related groups. Applicable examples for these groups.

29. Definite length—shorter, larger in number to permit planning by participants.

30. I believe that a smaller group than Group IV (about 15 maximum) would encourage greater group participation.
31. I have no suggestions as to any improvement of the group meetings. I do feel that the subject of work measurement could be included in the curriculum of various administrative schools on the theory that entirely all departments rely on administrative officers rather than professional men to obtain the most efficient operation of these activities.

32. Work in the field first to sell the idea. This would give the motivation necessary for a learning situation.

33. The men who conducted these meetings should have visited the schools concerned and met the Cino's and a few chiefs or rather instructors. In other words, visited the schools, observing the over-all picture before meetings were held.

34. I feel that the essential material is excellent and correct; however, I felt the instructor is of the opinion that most anything can be put to a formula—perhaps yes; however, the administration of such a thing in many incidences would be impossible. Generally, too much stress on performance rate in relation to other factors.

35. A person knowing both the principal topic and a good understanding of military operation should head the discussion.

36. Have persons familiar with Navy procedure conduct group meetings.

37. Would suggest having a Naval officer head discussion rather than approach problem from civilian standpoint. This would instill feeling of confidence among those attending that leader had first-hand knowledge of specific problems confronting them.

38. Indoctrinate the instructor on the organization and functions of the different departments.

39. Direct more questions to individuals to encourage group discussion and to insure a better understanding on the part of the conferees of the problems discussed.

40. More enthusiasm in the group leader. You have to sell this.

41. I suggest that ONE subject or item be given this test from beginning to end and submitted as evidence at the meeting.

42. More time on subjects covered.

43. It would just take more time to do the job any better.

44. Keep it simple and move slowly. Don't presume anything.
45. It is also felt that more time should be allotted for each meeting if at all possible. It is not good policy to have to watch a clock all during a meeting of this kind in order to ensure that the meeting is not carried overtime.

46. Long group meeting periods and more of them in order to work with a group to hash out various problems coming up as the program goes along.

47. Think the classes could be a little longer and explained more thoroughly.

48. Meetings too short--two hours, 9:00-11:00, would in my opinion give the speaker time to bring out in more detail some of the more important steps in the manual.

49. Give more time to discussing problems--less to reading what is in the manual. Also give more specific instances of how this has worked with professional groups elsewhere.

50. Have on-the-job instruction for each activity.

51. By taking one or more individual's problems and working them out to arrive at a tangible measure of work. The other problems would then be much more simple to arrive at the proper solution.

52. Suggest a series of three meetings on alternate days to introduce this program. The days between sessions devoted to working out actual problems during the development of the program within the organization.

53. Good as is--but expect to accomplish much more when we get down to meetings on one department or specialized group. Perhaps the first general meetings could be more straight lecture type--less discussion--pointed towards the work that can be accomplished when individual departments meet to start their study. If this were done, then the first group meeting should be enough--and should be followed by a scheduled departmental or specialized meeting.

54. More individual departmental attention.

55. Groups should be smaller and composed of activities with a common interest. For example, Group I might have included Communication Dept. as its interests more nearly parallel those of the Administrative group than those of the Security Dept. Security Dept. should have had direct representation of the Fire Dept. employing 31 civilians and having several well-defined work units.
6. Bring together people with more comparable jobs.

57. Specific plan.
   Use one school as an example and follow through.
   Don't leave men in the air.

8. Instructor should go into more details as to methods of establishing a work measurement program in an establishment similar to this activity.
   Methods used in a similar activity to avoid pitfalls of duplication.
   Concrete suggestions.

59. Illustrations used should vary from those used in the manual in order to stimulate discussion.

60. Illustrations should be actual instead of those used in the booklet.

61. Have material available for all personnel to study prior to the meeting—this will eliminate a lot of questions and allow more time to more appropriate questions.

62. Prepare a definite agenda for each meeting and make this agenda available to all personnel attending at least one day prior to meeting.

63. Have someone who thoroughly understands work measurement conduct the meetings.

64. Have someone who thoroughly understands the meaning of work measurement conduct the meetings.

65. It is felt that the meetings should be a little less informal in that the person conducting the meeting go on through with his introduction to the subject and his examples, reserving the question and answer period until he is finished with the above. In this way it is felt that more can be covered in the time allowed.

66. Devote more time to subject of work areas where measurement is difficult. In the case of "administrative" sub-function, for instance.

67. If those attending are to have a "working" understanding, definitely more time should be devoted to lectures, with more emphasis placed on reporting methods. (Computing performance rates and results.)

68. Visual aids could be used successfully for charts, saving time for further training.

69. Use trained team set up to enact the planning of a report, to be observed by group.
70. On-the-job discussion of specific problems.

71. Head of department, division officers, and leading petty officer of each department present at each meeting. Have only people who can give constructive criticism which will be taken and analyzed by the people present.

72. Too short for the amount of material that must be covered.

73. None at present except more indoctrination and training.

74. Can see the value of work measurement program adapted to a department or division where quality of work is not a factor--i.e., work cards processed in sale of war bonds.

75. No specific recommendation of these meetings. Much more, I trust, will be accomplished when our own department is discussed alone.
RESPONSES TO THE QUESTION, "WHAT DID YOU LIKE ABOUT THE MEETINGS?"

1. The effort being made to put the armed forces on paying basis.

2. If it was the intention of this course to get people thinking in terms of "stand by for the coming out"—it may have served its purpose.

3. The most important thing is to come to the realization that the Navy is not and should not become static in applying principles of efficient administration. Work measurement is one tool in effecting this attitude.

4. Sincerity in trying to develop a program that will benefit the Navy in organizational problems.

5. Objective of project.

6. Enlightened me as to the extent of work and accomplishments that have been made in this complex field.

7. Information of what has been accomplished in the field of work measurement.

8. Meaning of work measurement could be put forth.

9. They give you some idea of what work measurement is.

10. A proper means of indoctrination.

11. Helped to get the meaning of work measurement over to individuals.

12. They made work measurement more clear to me.

13. Adequate coverage of aims.

14. Over-all picture is more or less understandable, in which the meetings are an aid in my case.

15. It is believed the meetings did unearth several approaches to a means of increasing efficiency in personnel work, and if used, as pointed out, would afford a means of a pretty accurate check on production and work flow.

16. Basic information res the problem to be solved.

17. Points to be measured suggested.
18. It did stimulate thought.
19. Stimulated thought.
20. Stimulated thought.
21. Interesting discussion of various problems of work measurement.
22. Gave me a lot to think about.
23. I was glad to receive the instruction for possible future use in a job where it can be put to good practical use in more tangible situations.
24. It has opened the door to another method of measuring work load, should a more simplified method prove impractical.
25. Problems are brought out and solutions explained for more problems than an individual would realize existed except through close association with others setting up a system of work measurement at the same time.
26. Group meetings are essential in that the individual is better able to benefit himself by asking questions and taking part in a discussion.
27. Discussion.
28. The opportunity of discussion.
29. They give you a chance to talk with everyone at the group meeting.
30. The group was small enough to permit individuals to participate in the discussion if more time had been allotted for the meeting.
31. Chance to air opinions.
32. Group discussion.
33. The discussion leader gave ample opportunity for questions to be asked and answered then in detail.
34. Group discussion.
35. Helps get a better working knowledge by suggestions from others.
36. Period reserved for questions and discussion of common problems.
37. Everyone was given a chance to have their questions submitted in the time available and made to feel perfectly free to discuss any problems they had or anticipated. Putting the meetings on
an informal basis, it is believed, accomplished the most good, but meetings can become so informal that they get out of hand.

38. Variety of ideas and problems brought out by individuals. Round table discussion very good toward better understanding of objectives.

39. Enthusiasm of the persons conducting the meeting.

40. Very open-minded approach.

41. Liked not being lectured to or harangued.

42. I enjoyed the method of presentation—a questioning attitude with leading argument which precipitated avid discussion.

43. The instructor's enthusiasm in presentation of subject matter.

44. Appreciated the enthusiasm and sincerity of the speaker.

45. Pleasant manner in which the subject was introduced.

46. Friendly approach to subject.

47. Down-to-earth attitude.

48. The instructor was very good.

49. Excellent speaker. Points that were covered were very clear. However, the meeting ended too soon for him to follow through.

50. Excellent delivery of material at hand.

51. Necessary material was well prepared before meeting.

52. Instructor (teacher) appears to be an ex-officer—well-grounded in naval terminology.

53. The competent instructor.

54. Presentation. The group leader impressed me with his knowledge and sound background. This seemed to enable him, in the short time available, to bring me personally, some enlightenment.

55. Most points brought up during the discussion were explained and made clear.

56. Educational. Intelligent answers to all questions.
Knowledge on subject.

Mr. Tompkins' excellent grasp of Navy organization and familiarity with Navy problems.

The fact that you wanted to come to us with specific answers to our own particular problems in setting up our work measurement system.

The use of a department to serve as an example in the discussion and selection of work units.

The examples brought out.

Review of "areas of organization" very helpful.

The all too brief discussion of good management techniques.

Certain points were brought out that could have been gotten from the manual, but were made a little clearer without extensive study of the manual.

Helps to clarify questions.

Brings out various points that might otherwise be missed.

The length of the sessions. The hour or time of the meeting.

The meetings were of the correct duration. Long meetings lag and personnel become bored even if material presented is interesting.

Meeting time (0930) and length of meeting is excellent.

Length of meetings.

They were short.

They were fairly short and informal.

The informality of the meeting.

Relaxed, informal atmosphere.

Informality.

The informal approach to the problem as presented by Mr. Tompkins.

Approach to subject in an informal manner is very good.
Informal approach to and presentation of material.

Informal, confidential, no "experts."

Informal manner in which it was carried out.

The informality.

The informal meeting.

The presentation was relaxed. It invited areas of thought. The scope of work measurement was well-covered.

Phraseology at a level for all to understand.

Well-presented—details understood.

Material was presented clearly, concisely, and nowhere did it get so complicated that one could not follow it.

Technical terminology kept to a minimum.

Secured their cooperation to give work measurement a try.

Secured cooperation of personnel.

Small group.

The groups as a whole expressed a good deal of enthusiasm.

Discussion kept to the point, on the subject.

How the group or units were broken down. Figuring the P/R and the weighted work units.

Step by step explanation.

Frankly felt it a waste of time.

It seemed to be assumed that most of us understood the basic concepts of work measurement. Primary aims of this department is management rather than work measurement.

Brought out points which could be included in project.

I liked these meetings because the discussions were led by an authority on work measurement. I can see little advantage in continuing them beyond the indoctrination period. I see no advantage in discussing problems without someone present who has the answers. I feel that when the fundamentals of work measurement are understood, most problems that arise will be peculiar to the individual department concerned.
APPENDIX J

EXAMPLES OF WORK MEASUREMENT REPORTS SUBMITTED

AT NAVAL SHORE STATION "C"
WORK MEASUREMENT DATA FOR THE CLOTHING AND SMALL STORES
DIVISION OF THE SUPPLY AND VISSAL DEPARTMENT

<table>
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<tr>
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<th>3</th>
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<th>5</th>
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<tr>
<td><strong>SUBFUNCTION</strong></td>
<td><strong>DESCRIPTION OF WORK UNIT</strong></td>
<td><strong>HOURS EXPENDED</strong></td>
<td><strong>NUMBER OF WORK UNITS</strong></td>
<td><strong>PERFORMANCE RATE (3/4)</strong></td>
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<td>Selection</td>
<td>Description of Work Units</td>
<td>Man-Hours</td>
<td>Work Units Completed</td>
<td>Per Man Mps. Unit</td>
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<td>-----------</td>
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<td>Selection (8)</td>
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<td><strong>Totals</strong></td>
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<td>1782</td>
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Consolidated Performance Rates

- Total no. personnel: 40
- Normal Work Week: 40 hrs.

*Not included in normal work week performance
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<tr>
<th>Illustrations</th>
<th>Description of Work Unit</th>
<th>Numbers Expanded</th>
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<th>Percentile Rate</th>
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<td>6 In Service training</td>
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<td>7 Administrative</td>
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<td>30</td>
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<td>8 Military Duties</td>
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NUMBER OF INSTRUCTORS ATTACHED: 12
NORMAL WORK WEEK: 40
MILITARY DUTIES DURING THIS PERIOD: 40 HR., AVG 46.5
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<th>UNIT UNITS COMPLETED</th>
<th>PERFORMANCE RATE ACHIEVED PER UNIT</th>
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Number of Instructors attached: 29
Normal work week - 40 hours

Note: 21 instructors included in compiling this report.
I, Willis Lynn Tompkins, was born in Delavan, Kansas, December 17th, 1921. I received my secondary school education in the public schools of Council Grove, Kansas. My undergraduate training was obtained at The University of Kansas, from which I received the degree Bachelor of Science in 1943. After spending three years as an officer in the U. S. Navy, I returned to The University of Kansas where I served as Assistant Dean of Men from 1946 to 1948. I received the degree Master of Business Administration from The University of Kansas in 1948. From 1948 to 1950 I served as Assistant Dean of Men at Ohio University, Athens, Ohio. In 1950 I enrolled to pursue graduate work at The Ohio State University in the areas of higher education, personnel management, and psychology. While in residence at The Ohio State University, I served as an assistant instructor in the department of education during the year 1951-52. During the same year I was awarded a Simon Lazarus Memorial Scholarship. During the year 1952-53, while completing the requirements for the degree Doctor of Philosophy, I worked as a Research Associate for The Ohio State University Research Foundation. While enrolled for off-campus research during the final quarter, I was serving as Academic Dean at Missouri Valley College, Marshall, Missouri.